The Builder.

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Aspect of our Towns: Stafford.

THE first impression which a traveller now receives of a town is that imparted to him by the railway station and its accommodations. A large well-ordered station suggests the thriving town: confusion and scanty accommodation indicate the stagnant second-rate county borough: in other words, the station of a county town gives to the modern traveller the same clue to its wealth and importance that passengers by stage-coaches, a few years since, found in the style of the principal inn. Now the impressions imparted by the Stafford station are very unsatisfactory. It is a central junction station, where trains dash up from different quarters, in rapid succession, involving a great accumulation of luggage, and a constantly changing crowd of passengers. No less than three expresses, besides a slow train, arrive and depart in one short hour, at mid-day, all going the same way. To meet the exigencies of this extent of traffic suitable accommodation should be provided; but we find little better than that afforded at an unimportant road-side station. In the first place, the station is uncovered; and the roofs over the platforms do not protect them sufficiently from the weather: consequently every passenger who alights in rainy seasons steps into a rivulet. In the second place, horses are required to move the carriages about, and the space being so limited, as it is, they are obliged to come upon the narrow and crowded platforms,—an invasion which, although the docile animals may be as highly trained as Astley's steeds, occasions considerable terror and confusion to timid passengers. The traffic appears to have overgrown the provisions for it to a dangerous extent.

Crossing the river Sow by a new foot-bridge, on our road to the town, we pass another suggestion, that we are in a land to which modern progress has not as yet laid siege—a large old-fashioned water-mill, with the snug mansion and neat grounds of the miller close at hand. We next thread a mean district of poor houses, whose floors are 4 or 5 feet below the level of the river, which flows past them. Numerous large out-privies indicate that, in addition to the damp deposited and percolating from the river, other evils are in full operation.

In keeping with the depressing train of reflections induced by the condition of this neighbourhood, is the first sight of a decayed group of domestic Jacobean buildings, that we find to be the twelve almshouses built by Sir Isaac Noel, in 1640, "as a shelter for some of our aged necessitous poor, with a garden; and who gave 30*l.*, and twenty Bibles to the poor, with one Church Bible and eight folios." These buildings form three sides of a quadrangle, having for a centre a chapel, and in the two angles quaint and cunning doorways, the whole being picturesque, with mullioned windows, diamond quarry lattices and dormers, and ogee and pointed gables. The nearer we approach the more evident become the signs of ruinous dilapidation. The roofs are bent in; the tiles are loose and falling off; the modern brick chimneys are insecure, besides being a vulgar contrast to the lichen covered stone-work of the rest of the building; weeds are springing up in unwonted places; and the general aspect is that of a haunted house. Mrs. Ratcliffe would have assigned it at least three ghosts. Here, notwithstanding, are lodged several poor persons, who receive from the charity *weekly* sums, now dwindled down to amounts varying from 7½d. to 1s. We linger to chat with one of the inmates, a withered, spectral, tall, trembling old man,—fit tenant for such a neglected tenement—and learn that besides this small stipend there is a plot of garden ground attached to each dwelling, which would be serviceable indeed if the scanty means at their disposal could procure the necessary manure to refertilize the ground. Much we marvel that in this age of antiquarian societies and appreciation of architecture, as well as of charitable feeling, so favourable a specimen of the Domestic architecture of the early part of the seventeenth century should be thus suffered to decay: so little, too, seeming to be required to rescue this pleasant relic of olden charity from the destruction that apparently awaits it. The rooms are large; and the masonry is as perfect and expressive as when the eyes of the good Sir Isaac or of his executors first surveyed it. We lift the latch that should admit us to the chapel; but find, from the wailing voice that cravingly invites us to enter, that it has been converted into a dwelling. The voice, that of a starved woman, corroborates all that we have heard;—that the chapel is not maintained, the weekly pittance scarcely keeps body and soul together, and that the winds and rain make free to bring with them rheumatism for a fellow inmate. We ask concerning the commissioners appointed to inquire into the management of charitable trusts, and are told that they have visited Sir Isaac Noel's charity, but without any improvement resulting to its condition, or any augmentation of the weekly dole. This brings to mind the case of the Almshouse of Noble Poverty, the Hospital of St. Cross at Winchester, on which Sir John Romilly decided that, notwithstanding the lapse of a hundred and fifty years since the departure from the original terms of the trust, moneys received must be accounted for, and the buildings kept in a state of repair; whence we hope that it is not too late to put in a plea for the preservation of these Jacobean Almshouses. The race of Sir John Noel may have ceased on earth, but there are as good men and true still to be found. Could a more graceful or grateful tribute be paid to his memory by the town he loved and benefited than a reverent care of his valuable and useful bequest? Surely, in this rich neighbourhood, bounded on one side by the iron yielding district, and on the other by the art-fostering and wealth-giving potteries, there must be men with charity in their hearts, and power in their hands, who would be proud to associate their names with so good a work. Made prim, and neat, and green, and sunny, by a judicious application of the overflowing of a good man's purse—the inmates rejoiced and fattened with the crumbs from a rich man's table,—what a pleasant nook it would be for him, the rich man, to remember on a sick couch.

Stafford is particularly fortunate in its indigenous building materials: the red bricks and cream-coloured bricks, and the profusion and cheapness of the variegated tiles, permit the effective grouping of colours, and give the means of producing very pleasing results. We see a new Baptist chapel and schoolroom, which, by the simple and appropriate adjustment of red and black bricks in the rims of the window arches, would be satisfactory to the eye, but for the omission of a bell-turret (to indicate the ecclesiastical nature of the building), and the necessary unsightly substitution of a notice-board, with "Baptist Chapel and School" inscribed thereon. Cheery in every direction are the red tiles, with their setting of green fields and hills, after the long ride through the dingy smoke-hued country in the manufacturing districts.

In the Noah's Ark Inn we find another Jacobean building, well worthy of preservation. But this really magnificent remain of manor-house architecture appears to be neglected and despised: condemned, perhaps, because it is old and old-fashioned; or because the rooms are gloomy, with the myriad small square panes of bad glass in leaden frames, with which the window-openings are filled. The large, many mullioned, and transomed bow-window openings, offer every facility for the insertion of sheets of glass,—a simple expedient which, without destroying a feature of the architecture, would render the interior light and gladsome. So convenient in its neighbourhood to the church, what a delightful and appropriate rectory-house it would make! Too often these fine old buildings, from being patched with modern tasteless additions, get comparatively worthless, and afterwards ridiculed by some anomalous *sobriquet* as "Noah's Ark;" but in this instance there is little to remove, and with the exception of roofs and chimneys, but little restoration needful.

Like her neighbour, Wolverhampton, Stafford adorns her market-place with a Russian cannon; not, however, mounted or guarded by railings, but having rather the appearance of being left till called for. Its isolation and unprotected condition are in some degree modified by the contiguity of the police station-house, which, like the county-hall,—a square building, with square doors, square windows, and square everything, of the Adam's style of the last century,—is situated in the market-place. The scale upon which police stations are now built in country towns is a noticeable feature of these latter days. Time was when the lock-up, or "Kitty," as they have it in the north, was a mere cage. The present structure in some towns might be a "Palais de Justice." That at Stafford, occupying the next best site in the town to the county-hall, is no exception to this new rule. The market-place is paved with kidney pebbles, laid down with a precision rivalling that of the small square blocks in the streets and roads of modern Rome. The effect of the extreme regularity is almost oppressive, from the idea of the never ceasing repairs which it suggests; and the pebbles, being in semi-relief, afford, like the Birmingham streets, painful and toilsome walking. The fact of the market-place being pebble-paved is not so objectionable, if the streets were not paved to match, with bricks for curb, which are invariably more or less loose. On looking round the market square, and down the two main streets that slope away from it, at the Queen Anne-ish houses, with here and there an overhanging gable or a dormer intermixed with them, there is not the least indication that the inhabitants have heard of the now general application of sheet or plate glass to dwelling-houses, nearly all the windows being filled with the small panes and wide prison-like bars of bygone days.

There are two ancient churches in Stafford; with this difference between them: on one has been lavished decorations of the choicest description; whilst the other has, apparently, with the exception of the chancel, rarely occupied a thought or care. St. Mary's, formerly a collegiate church, has an elegant and peculiarly shaped octagon tower, with pinnacles at the angles, which, rising above the neighbouring house-tops, guides the stranger to its portals. It was originally a cruciform building, of an early and severe Transitional character, having subsequently been provided with a clerestory and additional height to the tower, in the Perpendicular period. The interior of the building is in beautiful order; the wood-

work in the stalls, pews, and pulpit, rich in design and execution; the risers to the eight steps leading from the nave to the sanctuary, the pavements, and the reredos are profusely enriched with encaustic tiles. Rich effects are also yielded by the abundance of stained glass;—concerning which, we must regret the too sparing use of white, as tending, as in the Ripon glass, and elsewhere, to give gloom instead of light. The long lancets in the south transept, the five-light east and west windows, with geometrical tracery, are noticeable instances of this want of relief and light as furnished by a judicious use of good sparkling white glass. We mention this, because there is an opportunity on the other side of the church to remedy this defect—where the large plain glass lights intensify the effect of the utter absence of white in those described. The clerestory windows present the same obscurity, nullifying, in some measure, the view we ought to obtain of the very clever decorations in the spandrils between the beautiful acutely-pointed arches beneath them, which divide the nave from the aisle. It is in the sacristy of this church that we observed the record of Sir Isaac Noel's pious gifts. We must note, too, the crowded state of the churchyard, which is literally packed with tombstones, and shows evidence beyond a doubt of the necessity of the extramural Act. A peal of fine old bells, one of the precious rarities of our belfries that we cannot too highly prize, exists in the tower here, and from which a beautiful chime floats as we move away.

The Norman church of St. Chad would appear to be hidden under a bushel, so difficult is it to find it. It certainly possesses a most unenviable site, being surrounded on four sides by back premises, back yards, and backs of houses. It appears to have been a Norman erection to which a tower was added in the Perpendicular period. The ancient walls have been cased with brick, through which the original windows here and there protrude. The tower, presenting features of great archæological interest, having an unusually pretty panelled and banded parapet, is frayed, and mouldering away.

A handsome set of school-buildings and masters' residences have been recently built near St. Mary's Church, forming, like the almshouses, whose cause we have pleaded, three sides of a square. The style adopted is Early Domestic Gothic. The only adverse remark we have to make is condemnatory of the too frequent repetition of one idea in the cusped window-heads, all of which are precisely of the same stereotyped form. The stonework of the building is artistically diversified between the quoins and rubble; and the roofs are picturesquely and substantially formed.

Stafford is comparatively free from the evil of overcrowding. Would that every poor man in a town had as pleasant a home as those in Eastgate, a wide street of small houses of one story, with gabled dormers to the attics, made into a sort of miniature "Champs Elysées," with a sprinkling of trees! But the same praise is not due in the matter of sewerage. A drainage system is in partial operation; but cesspools still prevail to an odoriferous extent; and we have already mentioned a district laid out on the bank of the river with such utter ignorance of the laws of sanitary science as to be several feet below the water's shining level. It has other black spots; but we pass them by just now.

The staple manufacture of this ancient town is that of boots and shoes—with which, we presume, the Crispin Inn has some appropriate associations. Tanning is also carried on; and we must not omit to mention, Stafford, that "thou brew'st good ale."

WEDGWOOD MEMORIAL COMPETITION.—The honorary secretary, Mr. W. Woodall, has sent us a reply to the protest in our last signed "*Jus supra vim*," but as it leaves the facts complained of where they were, and we have an immense pressure on our space, we are forced to omit it.

SOME OBSERVATIONS IN EGYPT.

THE subjects on which Professor Donaldson addressed the Institute of Architects on Monday evening last, as elsewhere stated, were Mons. Mariette's Excavations at Ghizeh and Saccara; the Domestic Architecture of the Ancient Egyptians as existing among the present Arabs; and the Catacombs at Alexandria, recently discovered. He commenced by stating that he would treat his subject in the light of a traveller's sketch, and describe as graphically as he was able a two days' excursion from Cairo to Ghizeh and Saccara. It would be necessary, however, that he should state at the outset that, having visited Egypt by direction of the Government upon a more serious subject, he had merely employed his few days of leisure to visit some of the ancient monuments of which he had read so much, which he had written upon, and which he had thought about for years. Many of those who heard him, who had not visited Egypt, were not perhaps aware that a donkey was a very useful animal in the East, and that the Egyptian donkeys upon which he rode were very superior of their sort, inasmuch as they were intelligent and docile, and took care of their riders, which latter was no small recommendation. They ambled away at the rate of five miles an hour, and he had often been in the saddle upon one of them for ten hours without being weary; which was more than he could have said had his quadruped been a horse. The mode of travelling in Egypt was to start at an early hour in the morning, between seven and eight o'clock. The custom was to hire a dragoman, who provided food for a day or two, according to the length of the proposed excursion, and some wax candles to be used in exploring the ruins. Equipped in this manner he started for old Cairo, which lies about a league distant from the modern city of that name. The way led by an avenue of trees planted by the late pasha. The present viceroy disapproved of trees, and cuts them down in all directions. Passing old Cairo the traveller reaches the plain, and crossing the Nile observes the hydrometer used for measuring the rise and fall of the river, and the village of Ghizeh. He then leaves the boat (in which his donkey has been accommodated) and passes through various Arab villages, groves of dates, and fragrant gardens. The Pyramids are then observed looming in the distance, paramount over all other objects. As the traveller advances their huge proportions develop themselves at every step, while other objects become, as it were, dwarfed. The Pyramids stand upon a plateau or rising ground, and in the neighbourhood can be distinctly traced the limits to which the Nile is accustomed to rise and spread its fertilizing influence. To the left of the Pyramids was the Sphinx, half-buried in the sand of the desert. The Pyramids (the largest of which is 480 feet in height), can be seen, in the clear pure air of the desert, at a distance of five-and-twenty miles. Once seen, the Pyramids never can be forgotten: one feels that an epoch has arrived in life, and the time of the Pharaohs and the history of the Bible all rush to the mind. The travellers in the railway carriages (for there is a railway in the desert) all exclaim, "the Pyramids! the Pyramids!" and your heart flutters as you gaze upon the monuments of an age long buried in the mists of obscurity, but around which there hangs an undying interest. At first two Pyramids alone are seen, but as you draw nearer the third becomes visible. The Arab villages are scattered to the right and left of the plateau; and when you reach the nearest of them the sheik, or chief, tells off a certain number of the men to act as your guides. For this service your dragoman pays him, and the guides are supposed to charge nothing more. The delight of a stranger is, however, so great, his sensations are so completely new, and the Arabs pull him and lift him along so heartily, that he gets up to the top of the great Pyramid in a quarter of an hour, amid exhilarating cries of "A la, la, backshish—very good;" and of course the money in his pocket melts away as if the sheik had not received anything on their behalf. The great Sphinx stands at a little distance. It is carved out of the solid rock; and, though its paws and hinder legs are covered with sand, it is still a noble object, and one which the traveller cannot readily forget.

Professor Donaldson then proceeded to give a description of the excavations carried on at Ghizeh, under the direction of M. Mariette, of which we are able to adopt his own words:—

M. Mariette, so well known for his researches among the antiquities of Egypt, has for some years conducted excavations for his Eminence, Said Pasha, the viceroy, and has had the control of all the antiquities of this country. No diggings are allowed without a permission granted through him. None of the Fellahs can sell the smallest object under pain of a severe punishment, extending, it is said by the Bedouin Arabs themselves, to death if any article be offered for sale without having been first brought to M. Mariette to buy it, if he choose, for the Pasha's collection. He is now carrying on excavations at the Ghizeh platform, Saccara, and Thebes, where gangs of Arabs are at work under the direction of their sheiks, with the slightest tool, and even with their hands, casting the sand, the dirt, and rubbish into small baskets, carrying it out of the trench, and depositing it at a short distance clear of the spot. This is a forced labour; each village in turn being obliged, as for other public works, to furnish and maintain its contingent without remuneration from the government. I observed that there were few grown-up people, the mass consisting of young boys and girls, who appeared very merry at their work, one or two of them singing a kind of couplet constantly repeating the same words, the rest joining in chorus at the end. M. Mariette is very stringent with respect to any strangers taking memoranda, sketches, or dimensions; and it was, as it were, only by stealth, and as though I were doing something else, to avoid observation, that I could put together a few notes of what I saw. In the illustrations, therefore, that accompany my remarks, these difficulties must be borne in mind; and, except when I give positive dimensions, very precise accuracy must not be expected. It is to be regretted that M. Mariette does not supersede such imperfect data by himself giving accurate descriptions of his most important discoveries. He has full knowledge of his subject, aptitude and felicity in knowing where to direct his researches, and great success has attended his labours; for the collection in the museum at Boulak contains many objects of the highest value, particularly those found in the tombs. He ought himself to reap the full benefit and credit of his investigations. But his delays are unjust to himself and injurious to the study of Egyptian archæology: and he must not feel either displeased or surprised that a passing traveller, like myself, should seek to make known to his colleagues, however imperfectly, some of the discoveries brought to light from time to time, and in which all Europe feel interested.

I regret that I had not the advantage of seeing M. Mariette while I was at Cairo. I called twice upon him at Boulak. He was out both times: the first, he had gone to Ghizeh with M. Lesseps: the second time, he had just started on the Nile to pay a visit of inspection to the operations carrying on at Thebes.

TOMB NEAR THE GREAT SPHINX.

M. Mariette has for some years past been engaged in excavating a tomb upon the Ghizeh platform, within 100 yards of the Sphinx. This tomb, like that of Campbell, is sunk in the solid rock, out of which it has been excavated, 30 or 40 feet deep. It assumes very much the form of a church, with a central aisle, and an aisle on each side, separated by square pillars, with a transept at one end, having a central line of pillars. There is a wide door at the end, leading into a kind of vestibule parallel with the transept, nearly as long, but only half as wide. In the vestibule there is a well of considerable depth, with water in it from the Nile. At each end of this vestibule are doorways, one leading into a gallery still filled with sand, the other into a wide passage running at right angles to it, the end also blocked up with sand. I should state, that the whole of these parts have no roofing now, and are open to the sky. From the transept there are openings: that on the one side leads into three cells parallel with the aisles I have just described: they are about 10 feet high; and over them was a much larger chamber. The opening from the other end of the transept leads into a narrow passage, also running parallel with the nave and side aisles, rising in an inclined direction, and being apparently the passage of entrance. On one side of this passage, in the thickness of the rock between the passage and side aisle, is a chamber; on the other side of the passage an inclined passage, leading to an upper story, probably over the entrance-passage and the chamber last noticed. The inclined passage is lined half its height with large blocks of granite, and the other, or upper half, and the ceiling, are lined with slabs of Egyptian alabaster, 12 inches to 15 inches thick. A specimen of this alabaster I brought away with me.

The piers dividing the nave and aisles are monoliths, 4 feet 9 inches by 3 feet 4 inches wide,

and 14 feet high, upon which rested longitudinal beams or architraves, about 3 feet high: most probably on these rested the transverse beams, forming the roof or ceiling. The walls were lined with blocks of granite of different tints, some of deep red, others approaching to grey. I measured some of these as memoranda of the gigantic character of their construction,—15 feet long by 5 feet high; 11 feet long by 3 feet 6 inches by 5 feet, and others 3 feet 4 inches square on the face.

The blocks in the angles had no joints there, but returned on the other face 2 inches or 3 inches, of course alternately breaking joint with the blocks above and below. This must necessarily have caused great waste of material and considerable additional labour. In the upper part, near the surface, I perceived some constructed walling formed of huge blocks of the rock itself, laid in regular courses. As I did not meet with M. Mariette at Cairo, I was unable to ascertain what had been found in this tomb; if any sarcophagus had been discovered; and the nature of any other particulars brought to light.

Before quitting the platform of the Pyramids I will venture to mention two or three other points with which I was struck. In front of the smallest of the three great Pyramids there was originally a considerable court, with a dromos or avenue which led up to it. The walls are thick, and consist of blocks of the full depth of 6 feet, and in courses 6 feet high. I measured, as the average length, blocks 16 feet 11 inches, 16 feet 9 inches, 16 feet 6 inches, and 11 feet 5 inches long.

When the bases of the Pyramids were clear of the sand, *débris*, and blocks, which now encumber them, they must have had large platforms, the rock having been cut away to form the level; consequently, at 100 or 150 feet behind the Pyramids, to the west, the face of the rock gave a perpendicular height of 10 or 15 feet. In the body of the rock tombs were cut having doorways opening upon the platform.

I found, on the lower part of the third Pyramid, courses of red granite, several blocks remaining in their original position, and having the appearance of bossed blocks, 3 feet 8 inches high, 3 feet 6 inches deep from front to rear on the upper bed, and from 2 feet 10 inches to 4 feet wide: they were wedge-shaped in plan, so as to form a key; and there was a curious angle-shaped channel on the face of some of the blocks lying about. The second Pyramid was faced with a granite revetment in the same manner as the first.

Of the once renowned Memphis, the great city of ancient Egypt which Alexander styled the gate of Egypt,—for whoever had possession of it could command the whole country,—there was not a trace left, save a gigantic statue, which lay half buried in a hole, from which the water of the Nile had not receded. All its magnificent buildings, its propylæa, its temples, had disappeared, and not a wreck remained to tell of its grandeur and its might. He was at a loss to account for this circumstance, save on the supposition that, as it was built so near the Nile, the Egyptians, from time to time, carried away its materials to erect temples in other places. The memorials of the dead alone remained to indicate the site. Long successions of pyramids occupied the Lybian range, and attested the magnificence of the mode of sepulture among the ancient Egyptians. The ruins of Saccara were distant from this place about three or four hours' journey. You pass a lake, and reach a mound, and behold a monument made of blocks. Another lake is then encountered, abounding with wild duck, snipe, and other aquatic birds, which furnish fair sport to the fowler. Fragments of mummies and of bones are strewn about for miles of the way.—He arrived at Saccara in the evening, and, yielding to the representations of his dragoman, deferred his visit to the ruins until morning. Rising very early, he proceeded before dawn to explore the ruins.

SERAPEION OF MEMPHIS.

The Bedouin village of Saccara is in a direct line, about a mile or a mile and a half to the west, from the site of Memphis. Up above the village, on the Lybian range of hills, are several pyramids with an immense quantity of tombs, proving that this must have been the principal cemetery of ancient Memphis. The pyramids are crumbling away, still however retaining gigantic proportions: the numerous mounds by which they are surrounded indicate constructions beneath, or the excavations of Arabs or travellers in search of antiquities; and for miles the surface of the sands, which have accumulated to the height of tens of feet above the rocky level, are strewed with fragments of mummies, blanched bones, and other worthless fruits of the diggings of the curious, inspiring feelings of horror and disgust at the ruthless spoliations of these resting-places of the dead.

Strabo mentions, as at Memphis, of which this plateau must have been considered to have formed a suburb or part, "a temple of Serapis in a spot," he says, "so sandy that the winds fill it up;" and in it he saw sphinxes embedded—some half way, others up to the head. It would therefore appear that, in ancient times, the same agencies existed; and it could have been by constant attention alone that the areas and dromoi of the temples could have been kept free from the accumulation of sand. Monsieur Mariette had seen a dozen sphinxes at Alexandria, and many at Cairo, brought from this part, and felt convinced that in this locality must exist the burial-place of Apis, or Serapeion, alluded to by ancient authors. He was engaged in his researches four years through the sand, in many parts 80 feet deep, and discovered the dromos or sacred avenue leading from the Serapeion of the Grecian times to that of the old Egyptian dynasties. The memories connected with the god Apis were very peculiar. He was a white bull marked with black spots: great care was used in the selection of the individual animal, that he might fulfil all the conditions required by traditional usage. He was kept in his sanctuary with scrupulous devotion, and not allowed to have food of too nourishing a quality, lest he should become too fat. He was occasionally, but rarely, brought out and exhibited to the worshippers. He was not allowed to live beyond twenty-five years: arrived at that period, he was slain, and his successor selected. They usually died at an earlier age. One is recorded whose death occurred when he was seventeen years, six months, and five days old. It is said that 20,000*l.* were expended for funeral rites, which were of the most sumptuous character.

The Serapeion which I visited had its connection with the Temple of Apis, and is situate on the slope of the hill, about two miles to the north of the Great Pyramid, and the descent to the present entrance is to the depth of some 30 feet or so below the general surface of the sand. We first passed along a narrow gallery about 48 paces long, then turned to the left some 25 paces, which led into the main gallery, 4 paces wide, and perhaps 15 or 18 feet high. The whole excavation is in the natural rock, which consists of a soft, pliable grey stone, like indurated clay, with seams of striated or fibrous alabaster, from ½ inch to 1 inch deep, and about 12 or 15 inches apart. The roofing of this gallery is semicircular in form, but the sides up to the springing of the circle are laid with soft Thorah stone, in courses 14 inches high and 18 inches thick. Turning to the right down this wide gallery, sepulchral chambers present themselves on each side. Nothing can be more imposing. In the dark gloom of the excavations, lighted only by the glimmering flare of a wax candle or two, or by a few pieces of burning resinous wood producing a doubtful gleam, these mortuary chapels, on a lower level than the gallery, and into which the eye intently gazed to catch sight of whatever might be within, presented a gigantic sarcophagus in the centre, 11 feet high, 12 feet 9 inches long by 7 feet 8 inches wide. Such, at least, was the size of the one I measured, although Monsieur Mariette records others from 15 to 18 feet long, and 13 feet high. These enormous proportions have a very impressive effect. They are of porphyry, grey and rose granite, and basalt. The body of the one I drew was 7 feet 8 inches high, hollowed out to receive the mummy and case, the sides and ends being left from 1 foot 2 inches to 1 foot 5 inches thick. The lid was 3 feet 1 inch high, splayed off at the top with a level upper surface, 4 feet 10½ inches wide. Each sarcophagus, without the lid, must have weighed thirty tons. Let us consider for a moment the labour employed to disengage such a mass from the quarry, to transport it several hundreds of miles from the upper country, to carry it from the Nile up to the level on the side of the hill, and then to convey it along the galleries and to raise and lower it into its permanent position. One of the sarcophagi in the rough still remains near the main entrance, as though in course of preparation for the mummy of the Creature God. The floor of these lateral chambers was 3 feet 9 inches lower than that of the main gallery, and the bottom of the sarcophagus was sunk some 3 feet 6 inches below that. The chambers varied in size, and were lined with courses of Thorah stone up to the springing of the vaulted ceiling, like the main gallery. One sepulchral chapel I measured was 25 feet 6 inches from front to rear, by 16 feet wide in the clear between the masonry: others measured between the rock 25 feet 8 inches, by 12 feet, thus varying in size. There are only three which have hieroglyphics. Those of the one I particularly examined were not deeply chased, but rather thinly incised, almost in mere lines, as it were, on the outside surface, and very few characters. For myself, I did not find any hieroglyphics on the other sarcophagi that I examined. I saw twenty-five of these chambers, beyond which the galleries are encumbered by *débris;* but there are further continuations examined by M. Mariette, and I doubt not others are still concealed from view, but probably containing other like stupendous sarcophagi.

M. Mariette discovered these subterranean deposits of the dead in 1851, and found forty chambers. One of these sepulchral chapels remained intact, just as it had been closed in the reign of Rameses II., some 3,700 years since, and containing still the statuettes, vases, and trinkets usually deposited with the bodies, but of which the other chambers had been despoiled. Many votive tablets exist, some inscribed with the names of Darius and of Cambyses, the latter of whom profanely wounded one of the sacred heifers, which, however, an inscription proves to have survived some years after that event. I found a rudely-carved figure of a couchant lion in stone on one of the sarcophagi, 4 feet 8 inches long, and 1 foot 10 inches high, as shown on the drawing.

ON FELLAH ARAB ARCHITECTURE IN EGYPT.

It will be remembered that, when Champollion and the other investigators of the hieroglyphic inscription on the famous Rosetta stone had their inquiries so materially aided by the Greek translation of the edict on that trilingual slab, they had still to find the elements of a language embodied in the hieroglyphic and demotic character, so as to afford a clue to the hidden meaning. With much ingenuity, reference was made to the tongue of the people who had constantly inhabited the country, and among whom tradition might still have retained the like language. Success attended this reference to the Coptic, which was found to contain the key of the ancient Egyptian language. As I was travelling in Lower Egypt, I was struck with the fact that almost all the villages are built on artificial mounds, rising from 20 feet to even 100 feet and more above the general flat and level of the natural soil. These mounds abound in the neighbourhood of Alexandria and Cairo, and in the valley of the Nile; and, in fact, throughout the region of Lower Egypt; consisting of accumulations of the Nile mud, mixed up with large quantities of fragments of pottery. If for any reason portions are cut through or removed, all sorts of antiquities—as, for instance, bronzes, terra-cottas, scarabei, and even tombs with mummies,—are occasionally found, as also sarcophagi. At length I found them to be the sites of ancient towns and villages of the remotest periods of known history—the accumulations of a succession of generations, which had had their frail tenements built one over the other, thus raising the mass still higher. They were thus more and more above the influence of the annual risings of the Nile waters, and protected from ravages that were caused thereby; and the more healthy, as they were higher above the occasional miasma arising from the vegetable decomposition, the natural result of the stagnation of the waters, until the Nile retired within the limits of its natural bed.

Having to go to Ras-el-Wadi, in the valley of Goshen, I saw the grand and extensive mound of Bubastis, of high note in ancient times, and situate near Zagasik: it rose from the plain like the mounds of Nineveh, Nimrud, and other Assyrian cities, described by Layard, and with which these Egyptian mounds have a remarkable analogy. I was detained for some hours on two occasions at Benha El Assal, on the Damietta branch of the Nile, close to the mound of the ancient Athribis, where a friend of mine has found a great variety of antiquities. I was struck with the rude form of the mud-built huts and houses of the Fellah, or people of the country. The walls consisted of sun-dried bricks, of a dusky brown colour; the faces inclined backwards, like the ancient Egyptian temples: flat terraces formed the roofs, on which the Arabs stow their fuel, and perform many of their domestic operations. The apertures for light or air are of rare occurrence, and small; seldom appear on the outside, and are more generally next the court to ensure privacy and shade. While I was detained at the railway station of Benha, I made a point of thoroughly examining its adjoining village, and calling to mind the representations of domestic buildings, which we have upon

the hieroglyphs and frescoes of antique Egyptian monuments, and as given by Sir Gardner Wilkinson, Champollion, Rosellini, Lepsius, and in the work of L'Egypte, I recognized the analogy at once between ancient and modern usages, and found that the buildings, like the language of the people, are a tradition of bygone times of remote antiquity,—and that the one explained the other, like the modern cottages of Lycia, which present the same features of timber construction as the tombs of Zanthus, carved 2,000 years ago. The bricks are nearly about the same size as ours, they are simply made of the Nile mud by boys, who perform all the operation, assisted by girls and other boys, who carry the material to the modeller, each of whom makes 900 per diem in winter, and 1,200 in summer. They are placed with two courses of stretchers to one of headers. The wider openings have timber lintels of the date wood. To produce an ornamental appearance, they lay a line of bricks herring-bone fashion, so as to present a sharp edge on the face. At others, every alternate header recedes from the face 2 or 3 inches. They have tile-formed bricks, about 12 inches long by some 2 inches thick, to form pointed tops to small apertures, or ranged in a row, to give a zig-zag appearance. Vertical channels are sometimes introduced, like those in the face of the ancient propylea, for the banner-masts, and they are formed either by receding bricks, one over the other, or by vertical bricks placed edge on, one over the other. But I need not minutely enter into further details, which are so much more perspicuously shown on the drawings. Over the doorway I observed that they always had a bit of crockery, as a plate, inserted into the face of the brickwork: one of those I saw was a plate or dish with the willow pattern on it. Frequently the doors are painted in brilliant colours, especially green, red, and yellow, with white, in patterns; and I should observe that, at Cairo, every Hadji who had been to Medina or Mecca immediately had his doorway bedizened with colour, to mark the important event. The general tone of the houses and villages is a dirty mud; now and then, yet very rarely, enlivened with a little whitewash on the strings and other features. But the mosques are always white. Sometimes it is a favourite habit for the Bedouins to dip their hands in whitewash that they have prepared, and daub the surface of the wall with the marks of the five finger. In fact, it is the custom with new-married women, when they have prepared the dough for a meal, to dip their hands in the flour, and mark the outside wall round the doorway, to show that they pay attention to their domestic duties, in preparing their husbands' food.

The streets of the villages are very narrow, varying from 4 or 5 feet to 7 or 8 feet, except perhaps one or two streets for the bazaar, which may be 10 feet wide. This is for the purpose of shade and keeping the streets cool—a necessary precaution in hot climates, and very prevalent in the East. The huts are only one story high, and rise 7 or 8 feet. Some houses have two stories, and a court-yard, with an outer staircase leading to the upper rooms. At the village of Saccara the treads, or steps, of a house at which I slept consisted of blocks of Thorah stone, brought from the ruins of the adjoining tombs and pyramids, carved with hieroglyphic inscriptions on the upper face, and which were being gradually worn away.

The floors and roofs are formed of rough lengths of the palm-tree wood, some 12 inches apart, covered with reeds and a thick coating of mud, which cracks easily, and admits the rain whenever there is a storm: this, however, is of rare occurrence above Alexandria, though frequent enough in that town.

The Arabs pay great attention to ventilation, and have apertures expressly for the purpose over the doors and windows, and under the ceilings in other parts, and occasionally just above the floor. These apertures they close with a mat stuffed in, which they remove whenever they wish to produce circulation of air in their cabins or rooms. Their sanitary precautions extend no further, for they have no drains, and all their dwellings are very dirty, and abound in fleas, not to mention other insects and vermin.

Fowls, pigeons, and doves abound in the plains and desert, where they easily find food, and there are numbers of them in every village. Conical-shaped dovecotes are generally perceivable in all the towns, rising above the general lines of the roofs of the dwellings; and usually the minaret of the mosque forms another vertical object in striking contrast with the flat tops of the houses. Many a tree also breaks the level line, as each village has them, being especially valuable as producing one of their chief articles of food, fibre for their cordage, and wood for their timber framings and utensils.

As I passed along the Egyptian plains and valleys, and saw these mounds, one after the other, with flat-roofed buildings, and of pyramidal shape, I could not but feel impressed with the conviction that these modern constructions recall the features of the towns and villages of antiquity erected on the very site of olden cities, inhabited by a like race, ruled by like laws of supreme power in their chiefs, following the like customs, but destitute of that civilization and grandeur of conception in their priesthood and dynasties which once produced those wondrous fabrics which have employed the highest genius and most profound learning of modern times to investigate their ruins and read the hidden mysteries of their records still preserved.

Passing next to the

CATACOMBS AT ALEXANDRIA.

Professor Donaldson said,—

In the illustrations accompanying the Architectural Dictionary, now in course of publication, are some plans and sections of tombs in the catacombs about three or four miles out of Alexandria to the westward. They are very curious, presenting features of the Greek period, and are of considerable extent. Of late years, Mr. Rous, chief engineer of the railroad, has had to cut away a portion of the rock in the immediate vicinity of the station, in order to gain further space for the accommodation of the increased traffic. These operations have brought to light a vast number of catacombs which were not known to exist. The upper surface varies from 20 to 60 feet (I think) above the present level, and the sides present a perfect honeycomb of tombs, one above the other, excavated in the live rock. Each family catacomb consisted of one, two, three, or even four chambers, and had a distinct access from above, with its separate stairs cut in the rock leading down to the subterranean vaults. Each chamber had two or three tiers of columbaria 2 feet 3 inches to 2 feet 10 inches wide, and 2 feet 10 inches high, and from 5 feet to 6 feet 6 inches deep. In some cases, as though for children, they are only 1 foot, 2 feet, or 3 feet deep. The ceilings were cut in the form of a low arched vault, and were painted a blue colour, having a flat oval moulding at the springing, also painted red. I will describe the tomb, of which I give a plan and section.

The principal sepulchral chamber, is 14 feet 8 inches by 18 feet 6 inches; having, on the side opposite the door, an arch flanked by antæ, and a sunk receptacle for the body cut in the rock: the lid, if any once existed, is not now remaining there, though others have been found. Over this was cut at right angles in the rock a columbarium to receive a body, 2 feet 4 inches wide, by 2 feet 8 inches high, and 7 feet 3 inches deep. At one end of this chamber there was a like arrangement without the columbarium over, and part of the back being partially broken away, and a portion of the wall in another part of this chamber, which we found to be only 6 or 9 inches thick. Those apertures disclosed on the other side of the thin walls other sepulchral chambers belonging to distinct tombs of other families. The antæ had beams over them sunk in the rock, dividing the ceiling into three compartments. The doorway leading into this chamber had on the outside three-quarter detached columns, over which was an entablature and pediment. There were considerable remains of colour and paintings of flat Egyptian figures in panels, showing that, although the architectural features were Greco-Roman, the pictorial decoration retained the character of Egyptian art.

The level of the principal chamber is about 2 or 3 feet above the floor of the next, which is 18 feet 11 inches long, by 13 feet wide, also vaulted. The two sides only of the latter chamber are pierced for columbaria, three ranges high, five or six of a row irregularly placed. One in the angle, 4 feet 9 inches wide, forms a species of vestibule, 16 feet 9 inches by 13 feet 8 inches, having its sarcophagus cut in the rock and columbarium over at the back of the recess.

An aperture, 8 feet 3 inches wide, led into a sepulchral chamber, which had three tiers of columbaria on the three sides, there being six in each tier on the side opposite the entrance, and space for four in a row at each end; although at present only three were cut, leaving room for future bodies to be received. Each of the openings in this chamber has narrow, delicate, architrave mouldings of a Pompeian character, worked in plaster with thin consoles to support the head mouldings. I found this to be the case in other tombs. From the accumulation of *débris* and collection of water, it was impossible to ascertain precisely the heights of the chambers; but they must be about 11 feet 3 inches to the springing of the vault, and the vault itself rises 2 feet 6 inches, giving a total height of about 13 feet 9 inches.

While at Alexandria, Professor Donaldson went of course to see Pompey's Pillar; and, on examining the base, he was surprised to find that a number of boulders were placed irregularly under it. He was enabled to push a 5-feet rod through the fissures; and, upon further examination, he found an opening large enough to admit his body. On entering it he ascertained, greatly to his astonishment, that the pillar rested upon a square block of stone, in the centre, of smaller diameter than the base of the monument itself. The pillar stood upon a mound, 100 feet above the level of the surrounding country. He had asked Mr. Rous, the engineer to the railway, to examine it thoroughly; in the hope that, if the pillar were in danger, some representation might be made to the Viceroy of Egypt, to take steps for its preservation. The circumstance of the pillar resting in the manner he had stated was most extraordinary; and it occurred to him that the block of stone to which he referred, as supporting the whole, might be the upper portion of another column or obelisk, imbedded in the ground. But whatever might be the hypothesis on the subject, the fact itself was most curious.

BIG BEN AND THE LITTLE ONES.

THE Westminster clock has again begun to strike the quarters on the four quarter bells, and the hour also on the largest of them, which is rather smaller but more powerful, as well as much sweeter in tone, than the great bell of St. Paul's. It is, however, just four notes too high for the proper note to follow the quarters, being B instead of E, the octave below the third bell which finishes the chime. The quarter hammers have been lightened in order to make an apparent distinction between the striking of the hour and the quarters on the same bell. This is but a poor substitute for the proper difference of note, and the quarters sound more feeble than they did in September 1859, before the Board of Works stopped them on the cracks in Big Ben being discovered. A recent parliamentary return on the subject has added one more to the startling contradictions by which men of science sometimes astonish the world. No less a person than the Astronomer Royal reports to the Board of Works that two of these bells are a note and a half, and another of them half a note out of tune, and proposes to recast them accordingly; while it is stated in the last edition of Mr. Denison's "Treatise on Clocks and Bells," that all the bells were certified by Mr. Turle, and other musical authorities, as being "in perfect tune." Moreover, according to the simple mathematical rule given in various books for the size and thickness of bells, and all other vibrating bodies, any such deviation from the proper notes as Mr. Airy discovers would surely be impossible, without such an enormous deviation from the proper size or thickness as he must have observed if he had measured them. There is or was another curious contradiction in the views of the different authorities as to the great bell, which it seems is now unquestionably defunct. Mr. Denison, as he has good reason to remember, published his opinion in 1859, that it was unsound, porous, a defective casting, and cracked irretrievably in consequence of its own defects. Professor Tyndall and the Astronomer Royal subsequently reported to the Board of Works that it was "perfectly sound for all practical purposes," the cracks only superficial, and that cutting them out, "to relieve the metal from strain," and turning the bell to strike in another place, with a lighter hammer, was all that was required; and so Mr. Cowper told the House of Commons. At last Dr. Percy is authorised to cut into the bell to the bottom of one of the cracks, which Mr. Denison complains of the Board of Works refusing either to do or allow him to do, before Mr. Mears's action came on, three months after the bell was cracked. Dr. Percy finds that the explored crack (which is not the largest externally) already goes nearly half way through the bell. He gives the analysis of numerous bits of metal from various parts and depths, and reports that "most of them are unsound and porous, the metal generally far from homogeneous, and of varying specific gravity," and "*that the casting is defective;*" and he shows that to the depth of two inches from the surface there is a considerable excess of tin beyond the amount prescribed, half of which excess, he says,

would be enough to "make a sensible increase in the hardness and brittleness of the metal." He accordingly attributes the failure to these causes, which are now removed from the region of scientific speculation into the more certain realms of fact. Probably all this would have been ascertained in a week, and the bell replaced by this time with a sound one (if our "eminent bell-founders" are really able to produce such an article), if it had belonged to anybody except the nation.

ON SOME MALVERSE REACTIONS OCCURRING IN OIL-PAINT COMPOSITIONS.

ALLEGED ADULTERATIONS OF THE LINSEED OIL.*

By surreptitious Additions made to the Oil itself.—There would appear to exist, in a pipe of genuine linseed oil, of the finest brand, some inherent power of fascination that tells with especial force on a certain class of people whose idiosyncracies are peculiar. The colour of its sample, when taken in a *demi-tasse* of clear crystal, is so brilliant, its scent so fragrant, its taste so rich, that the temptation to some is irresistible to speculate on such fine properties, which will surely bear some profitable manipulating with, without detection by the uninitiated? These manipulating gentlemen—to wit, the adulterators—feel, when they handle this pure oil, the same itching of the fingers that casts its spell over one of the light-fingered adepts of another order, on sight, and within reach of, some piece of *recherché bijouterie*—a yellow Oriental topaz, with a beading of little pearls set in chased gold, for example.

But to pass from the figurative to the real. These manipulators, so tempted, must first discover the mode of gratifying their cupidity. In casting about for some fit material with which to adulterate the oil, they find that they have but a very limited number of such to choose from. It must be something that is perfectly miscible with the oil, that is of the same or a similar colour, that does not affect its transparency, and that is scentless, or not materially different, in this last respect, from the oil itself.

The market price of fats, or of the other fixed oils that might, in their properties, agree with these requirements, bars all resort to these for his purpose. Linseed happens to be the cheapest of all such oils. Its present price is 28*l.* 15*s.* per ton: it is seldom above 30*l.* Of the other seed oils, the nearest to it in price is gingelly, 40*l.*; ground nut is 42*l.*; palm, 47*l.*; cocoa-nut, 53*l.*; the cheapest of the olives is 56*l.* the ton. Of the animal oils, tallow oil is 32*l.* 10*s.*; and lard oil, 67*l.* per ton. Neither will the fish oils subserve his purpose, even if their properties would. Pale seal, the most seemingly available, is 40*l.* the ton.

There exist no refuse fats or oleaginous products of other manufacturing operations that through either their price or qualities can subserve such a purpose. Those newly-introduced products (so useful and so interesting chemically) of the decomposition of bituminous matters,—of coal, petroleum, bituminous shale, &c., &c., and known now under such names as mineral oil, parafine oils, and others, are, from their properties, unavailable in this intended adulteration of the oil, as is equally another longer-known product of the distillation of coal tar and other tars in naphtha-making,—a refuse one, accruing in great abundance out of such operations, and technically called "dead oil." Neither this one nor any other of the heavy-fluid hydro-carbons that the action of heat upon these protean compounds gives rise to, is, from its properties, applicable to this purpose.

But the manipulator discovers (as he thinks) a solution of his difficulties in another quarter.

Notwithstanding the assumed fruitfulness of the earth, its oil-yielding existences are, in fact, and by comparison, singularly limited in number and in their aggregate productiveness. Of this we have sufficient evidence in the prices current of all the varieties of oils, animal, mineral, and vegetable. Hence it is, as our manufactures and social requirements go on expanding, there is made a perpetual effort to supply, by artificial expedients, these natural deficiencies. The enormous outlay incurred in every branch of our staple manufacturing operations, and in our multitudinous workshops, for lubricating oils of the costliest as well as of the coarsest descriptions, the scarcely less immense consumption of other kinds of oils for the purposes of illumination; and the almost universal employment and distribution of the drying oils, are only a few of the outlets that help to absorb what are produced naturally, and make it a perennial requirement to obtain fresh supplies by any available expedients.

Out of these demands has sprung the (and, in some respects, successful) search after the artificial oleaginous products just referred to; and among these there is one in particular that the oil adulterator has largely, if not very honourably, availed himself of.

A natural exudation from certain kinds of pine and larch trees gives us turpentine, and this semi-fluid or viscid substance, distilled under a moderate heat, is resolved into spirits of turpentine and common resin as a residue. This residual resin, on application to it of a much higher heat, suffers decomposition, and yields, in its turn, a volatile oleaginous product and a solid residue, the one constituting a species of pitch or artificial asphaltum used in varnish-making, and the other the well-known resin oil.

This resin oil, in its crude state, is worth from 7*l.* to 9*l.* per ton. When refined its price ranges (according to the degree of purification) between 12*l.* and 18*l.* The refined article is either brownish yellow or straw-coloured; closely, in this respect, resembling linseed oil, with which, also, it is miscible to any extent. It is, except under the high temperature just spoken of, a fixed oil—permanent in its fluidity,—and is in other respects—within all ordinary periods of time or circumstances—almost unchangeable in its properties. It is only after a very long exposure to air that its colour deepens and it becomes thickened, and, to some extent, re-resinified. Unlike spirits of turpentine, which, in a paint composition, is ultimately diffused through and dissipated by atmospheric air at ordinary temperatures, this spirit of resin (as it may be called) remains fixed in such compositions under the same circumstances. It is only when raised to a very high temperature that it is volatilized—that is, to a heat only a little below the degree under which linseed oil itself boils.

Were it not, therefore, for its non-drying properties and its special flavour, this resin oil would—its comparative cheapness considered—be no unfit adulterating agent for the purposes of this manipulator of linseed oil. Yet, notwithstanding these two material drawbacks to its utility, it has been used for these purposes to a very great extent. This was the more especially the case a few years ago, when the resin oil manufacture first became common, and the oil, consequently, was then for the first time to be had readily and cheaply.

The profit temptation was, and still is, of course, the incentive. For mixing with the raw oil (not the boiled, for the latter admits of a coarser kind being resorted to) one of the refined kinds of this resin oil must be employed,—a kind worth, perhaps, about 15*l.* per ton. The quantity added the writer has known to have been equal to one-fourth of the compound oil—that is, 5 cwts. of resin oil to 15 cwts. of linseed. It is no great stretch of credulity to believe that greater quantities even than this may constantly have been ventured on. These proportions, with linseed at 30*l.*, give 26*l.* 5*s.* as the cost of the compound, and a profit of 3*l.* 15*s.* on every ton sold at 30*l.*

The scent* of this resin oil, so nauseous and characteristic, and making its presence so easy of detection, speedily however checked, if it did not stop, the so prevalent use of this audacious scheme of adulteration. No one can mistake or fail to identify the specific aroma of this product. For more than "many a rood" beyond its place of manufacture the locality and nature of the operations there going on are perceptible. It is as far-penetrating, abiding, and disgusting as the effluvium from oil-boiling itself, or as that from the boiling of bones, or from the semi-putrescent gelatine that greets the olfactory nerves of the railway traveller as he rides over the tops of the glue-factories and tanneries of Bermondsey, or walks on the Deptford bank of the Thames, opposite the Isle of Dogs, or comes too near Stinking Housebridge, on Bow Common. Except for this one property, but little limit would have been placed on the use of this product for the purposes of adulteration.†

This brief review of the origin and properties of this resin oil enables one to anticipate what will be the effects of its presence along with linseed oil in a varnish or a paint. Omitting—as of lesser (though bad enough) importance—all consideration as to its disagreeable scent, its immediate and after injurious actions are analogous to those of a non-drying oil, as described in the preceding paper. The resin oil never, itself, dries, either by true evaporation or through chemical reactions with atmospheric air. It reduces, to an extent proportionate to its relative quantity present, the proper ultimate hardness of the linseed oil, and the hardness consequently of the varnish or paint the oil forms a part of. It never solidifies and thereby (as every element in a paint or varnish should contribute to do) make the composition impervious to air, and proof against the (it may be many) after-chemical reactions of the atmosphere. It remains fluid, and subject to these reactions, and, through them, to the ultimate destruction both of the proper art-effects and of the substantial organic structure of the paint.

But the adulterator finds another and a better substance ready to his hand, and which, if it be not an absolutely perfect instrument, is at least free from some of the defects that attach to this last one. This better agent is common resin.

The malverse influences that are exercised on a paint by this resin are different from those previously discussed, and need a distinct and careful analysis.

It is because of its greater comparative susceptibility to the action of heat and of changes of heat, its greater relative contraction and expansion under such changes, and because of its friability and inefficient hardness, and tendency to soften under warmth, that the ultimate bad consequences of the presence of resin in an oil-paint or varnish are experienced.

Intermediately, the evil effects of its presence in the oil flow out of the unlike molecular structure of the two materials,—the oil and the resin; and in the unequal order and time-rate in which the one assumes and the other regains its solidity in such a mixture.

Unlike a non-drying oil and resin oil, which are from the beginning fluid, and remain so always, within at least any period of time concerned in such changes, resin is, *per se*, from the first, a solid mass, though possessed of a comparatively inferior degree of hardness. This solidity is invaded only temporarily by its solution in the linseed oil; so that, when the latter solidifies, its associated resin again appears in its solid state.

The vitreous-like resin is really (though we are unable palpably to find it so) a crystalline body,—that is, when solid, its particles are aggregated together in some symmetrical order; and the solidified oil also has a special molecular arrangement of its own. When, therefore, in such a mixture—paint or varnish—there sets in (by its own internal and by external reactions), the process of the solidifying of the oil, there is going on simultaneously and side by side with this, the reassumption by the resin of its proper solid state. But each of these processes advances at a rate of its own, and that rate a different one from the other's rate. Conjointly they terminate in a solid compound mass, different, of course, in bulk (that is, in the space it now occupies) from the fluid mass. The two elements—the now solid oil and solid resin—have advanced to that condition by different rates of progression, are possessed now of different degrees of hardness, and remain subject, moreover, to unequal influences under the action of different temperatures. The resin, after the paint or varnish containing it is dry, is more easily affected by heat, and by transitions from heat to cold, or conversely, than is the solidified oil. It results, therefore, that there are two kinds of internal actions in an oil mixed with resin that act injuriously,—one during the progress of the drying, and another kind that operates for some time afterwards. There is an irregular and disturbing molecular movement going on during the act of drying, and beyond this, a perpetually recurring one that supervenes in such a mixture, after its solidification.

The effects of the double agency exercised by these two kinds of molecular action are (whether the proportion present of the resin be great or small; but, of course, these are proportionally aggravated if the quantity present be large) to give to a paint or varnish an open and unsound body, and to beget reactions that either destroy or disarrange intended art effects.

The oil-painted walls of the outside of a house, or those of an inside apartment, are exposed to perpetual alternations, ranging sometimes between rather extreme degrees, of heat and cold; as when

* See pp. 3 and 34, *ante*.

* To free this product from this distinctive accompaniment is another of the modern problems for the chemist-investigator, and the prospective reward for its solution is something fabulous. So freed, its applications, both in England and on the Continent, would be innumerable.

† It is not more extraordinary than are so many other similar apparent incongruities in the properties of matter, that to this very offensive product (but obtained otherwise in this case) was owing the fragrant scent of the Russia leather of the olden make—through an empyreumatic compound that found its way into the "dressing" used in manufacturing this leather: like musk, which, when pure, is sickly to the taste, but, when diluted, becomes an exquisite perfume.

the action of the sun's rays on the outside is succeeded by the cold night's air; or when the higher temperature of a gas-lit room has subsided into the temperature commonly prevailing in the daytime.

One of the most palpable consequences of the presence of resin (if the proportion be considerable) is that developed by mere warmth, when it becomes softened superficially, and makes the paint or varnish adhere ("tack") to anything that touches it—the hand, for example, placed upon it, or the back resting against such a paint.

One of the most conspicuous effects of the molecular actions is the deadening of the surface, that is, the deglossing, or permanent flatting of such a paint; and the immediate cause of this appearance is obvious enough under the microscope, or even when the examination is made by a common pocket magnifying-glass.

When "flatting" in a paint is produced by turpentine, the effect is due to the preponderance of the pigmentary over the oil element in the mixture, and to the consequent production of a comparatively roughened, instead of a perfectly plain light-reflecting surface. When the flatting results from the "stippling" of a full oil-charged paint, this effect is due to the interference of shadow-making projections, or of a multitude of minute protuberances with the otherwise proper light-reflecting surface. In the present case, the flatting effect is due to innumerable breaks in the continuity of the reflecting surface; for the microscope detects, in a dried *resined* oil paint, cracks and fissures that are reticulated over the entire surface, in appearance not unlike those of a moistened slab of clay when sun-dried, which shrinks, and is then reticulated with divisional lines in all directions.

Did this common resin possess the properties of the finer gums proper—of copal, for example,—no very great harm, physically (omitting here the moral question of adulteration), for ordinary purposes, would follow its surreptitious employment. But their greater hardness and brilliancy (light-reflecting power), their unchangeableness,—neither softening nor materially expanding or contracting, under ordinary temperatures, or ordinary variations of temperature; and, above all, their special molecular formation, which so well adapts these gums for mixing and co-acting with linseed oil, are properties this common resin is not possessed of.*

Neither these gums, nor does this common resin, undergo any material chemical change by mere exposure to air. Their action, in such mixtures, is mechanical only. But with the fluid non-drying oils, or with resin oil, there are exercised (as has already been said) both mechanical and chemical actions. These oils (remaining fluid for, at least, a considerable length of time after the apparent solidification of the paint or varnish), also exercise in it certain mechanical actions that are similar to (though their procedure may be somewhat different from) those following the presence of the common resin,—that is, they lead to the expanding and contracting, the softening and again setting of it under changing temperatures; or, in the genuine oil's act of solidifying, they are thrown out of union with it, and distributed in fluid globules throughout the mass; and thus they mechanically affect intended art effects and the substantial integrity of the mass. But, beyond all this, their presence and special conditions bring about the supervention of purely chemical reactions, sometimes between them and other conjoined elements, but more particularly between themselves and the external atmosphere, all tending to produce some or other of the varieties of efflorescences, decolourations, reversings of shades and tints, and the many other external and visible evidences of a diseased and decaying composition.

Summarily, with the solid resin adulterative there follows a series of malverse reactions that are purely mechanical. With these fluid adulteratives there ensue both a like mechanical and, in addition, a series of chemical reactions, the more adverse of the two because of their active character and long-continued action, and of their comparative multiplicity. The resin is comparatively harmless when its effects are estimated against those flowing from the non-drying oils and the resin oil. The presence of the latter adulterative is the most easy of detection; that of the resin the next most easy; whilst the detection of the non-drying oils, by chemical testing appliances, is both specially and comparatively an operation that has in it many points of difficulty.

But these considerations do not affect the oil manipulator. His mode of proceeding, and his reasoning when he resorts to common resin, are as follow:—The value of English resin is some 5*s.* the cwt.; that of the genuine linseed oil, with carriage, &c., 30*l.* the ton. Resin melts at about 280° Fahr., and when so melted is added to the genuine oil, also warmed. It readily dissolves in the oil, and yields a mixture in which, when cold, the flavour of the resin is imperceptible, and the colour not dissimilar from that of the original oil.* It will be thickened in proportion to the relative quantity of the resin. But when moderately applied, this thickening is recognisable only by close observation, or by the use of delicate instruments for determining degrees of viscidity. After the solution is made, it is only by some special tests, and scarcely by its mere appearance, that the presence of the resin can be detected. The *after*-effects in paints or varnishes of such an addition afford involuntary testings, that, unfortunately, are but too indicative of the fact. Meanwhile, the adulterator so makes his additions that a ton of his oil shall consist finally of 19 cwts. of genuine oil plus 1 cwt.; or of 18 plus 2; or of 17 plus 3 (where he dare venture on this last quantity) of resin; and thus he gives himself an extra cheat profit on the "transaction" of 1*l.* 5*s.*, or 2*l.* 10*s.*, or 3*l.* 15*s.*, for every ton of this manipulated article—no trifling annual revenue for him, however ugly its complexion, if only a few tons weekly of this precious compost be disposed of. The estimate of this gain may be otherwise made:—Suppose that 20 tons of genuine oil pass through the hands of the manipulator, and from each ton he abstracts 1 cwt. of the oil, and replaces it by an equal weight of resin. The gain finally is, of course, the same; and the abstracted ton made up of the 20 separate cwts. will, when sold, give him his 30*l.*, minus the value of the substituted resin. But can he then resist the temptation to add, through the medium of another cwt. or two of resin, a further 1*l.* 5*s.*, or 2*l.* 10*s.*, or 3*l.* 15*s.*, to the cheat profit on the pilfered ton already secured?

By the time an adulterated oil may reach the hands of the operative painter, it becomes difficult—so many and diverse are the intermediate channels it may have passed through—on whom to fix the culpability; and great injustice may chance to be done in the attempt. The commercial world of England is certainly not made up of adulterators, who are the exception, and not the rule. A good deal is to be attributed to the scarcity of exact chemical knowledge in the mercantile community, and to the absence of the habit, in the rush and crush of commercial life, of examining into, or even of thinking at all on, such subjects. The condition of the oil consequent on the transition from the Baltic to the East-India seed, was of purely an incidental and non-culpative character, so far as the English seed-crushers are concerned. Now, doubtless, their attention having been called to the subject, the genuine will be winnowed from the interpolated seeds, and the country, as before, be again supplied generally with fine genuine oil.

But when resin oil† and resin find their way into the oil, that concoction must, of course, have been made at some specific place and by some specific perpetrator. And what cares such a manipulator for the train of evils that may follow this his indulging in these adroit propensities—for the discredit and loss cast, for example, on some house decorator, or the not less unmerited distress inflicted on his workmen? Whilst the decorator or master painter may have to forego or refund payments, and his men be thrown out of work, this thief will duly receive his accounts, and will, no doubt, congratulate himself on doing so, with infinite self-complacency. He will smile and rub his hands (perchance lubricating them the while with a drachm or two of genuine oil,—not with his own ill-omened concoction, for that, like the Macbeth "spot," will, he knows, *stick* to them) in great glee, under a feeling of success, and a conviction that the chances are a thousand to one against his detection.

I would venture to give these manipulating gentlemen a hint which, if taken, will be vastly to their advantage, and, in the end, to that of the public also. It is that, for these purposes (the more specially so when it is with our ancient acquaintance, *black boiled oil*, they are manipulating), they should, in future, altogether discard resin oil or resin as too well known now, and too stale a device, and take instead to *coal-tar pitch*. Now, pitch is so plentiful an article that it can in many places be had for only 1*s.* 6*d.* or 2*s.* per cwt., whilst resin costs 5*s.* Besides, the colour of the pitch fits so admirably to that of the boiled oil itself. It is not, indeed, necessary, in this case, to boil the oil at all; for a solution of pitch in raw linseed oil is a very excellent imitation of many kinds of boiled oil that are to be met with in the market, and this likeness extends to some others of its properties besides that of its colour. In thus resorting to pitch no heed need be taken of any after-effects on the paints or varnishes such a compost may find its way into. The fact that it will not dry, and the inconvenience and waste that may accompany its use, are quite immaterial to the manipulator. These kinds of mishaps, when charged against it or him, can be evaded, or disputed, or battled against, after the usual fashion. In thus resorting to pitch the manipulator will find it more profitable than resin, and more desirable to use than "foots,"—that "*caput mortuum*" of the *old*, and *pedes diaboli* of those *modern* alchymists,—the boilers of oil. And the doing this will be a benefit to himself, because he will be all the sooner detected in his malpractices, and driven, as people say, to seek otherwise a more honest livelihood. It will be a benefit also to the public, because, suffering under such inflictions, they will all the more readily bestir themselves in studying the subject of these oils, and what may be the most appropriate treatment of them.

C. B.

* Another of the physico-chemical problems of the present day (over which so many fruitless hopes, and so much unrewarded ingenuity, erroneously founded and guided, have been expended), is the imparting to this common resin for varnish purposes these inapproachable properties of the finer gums and resins.

* The printing-ink manufacturer habitually makes this kind of solution for his so-called "varnish." The use in this case of the resin, it is needless to say, is legitimate and proper, and is altogether different both in intention and effect from the adulterations here referred to. Resin is an avowed and useful ingredient in common printing-inks.

† One of these manipulators, more audacious than usual, gave, some time ago, an order to one of the large paint-grinding houses of the north of England, for a quantity of red oxide of iron to be ground into paint with *resin oil exclusively*. His reply, on having pointed out to him the impolicy, to say nothing of the impropriety of such a mixture, was that "it was for an outside contract job, and of no consequence whether it would dry or not!"

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE ordinary meeting of members was held on Monday last, at the house in Conduit-street.

The President, Mr. C. R. Cockerell, R.A., occupied the chair; and, after despatch of business, said he was sure they all felt great pleasure at finding their old friend, Professor Donaldson, again among them, after his pleasant journey up the Nile, and his visit to the Pyramids and monuments of ancient Egypt. They would also be glad to learn that he had not forgotten them, as he was about to read a paper embracing some of the most interesting features in his excursion.

Mr. T. H. Lewis, honorary secretary, read a list of donations to the library, and announced that the papers, plans, &c., issued by various bodies asking for professional advice and competition, might for the future be seen in the library. (Among the donations were some photographs of buildings from Mr. Francis, and a description of the Minster of Friburg, from Mr. Ferrey.)

Mr. Charles Barry begged to be allowed to bring forward a few facts in relation to some stone similar to that in the new Houses of Parliament, which he had himself used in the construction of a mansion, Bylaugh Hall, in the county of Norfolk, in the years 1850 and 1851. The house in question was faced with the same description of stone, supplied from the same quarry and from the same bed, by Mr. Grissell, who at the time was engaged in erecting the new Houses of Parliament. The difference, however, in the two buildings was (as his brother had stated at the last meeting of the Institute), that one was built on the bank of a sewer, while the other was in pure air, and uncontaminated by the acids contained in the London atmosphere. He had written to a friend at Norwich, who lived in the neighbourhood of the house to which he referred, requesting him to go and look at the building, and report to him the state in which he found it. The answer had not been received in time, or he would have read it at the last meeting; but, as it contained an authentic fact, he hoped to be allowed to read it now, and to place it in the hands of the council, for any purpose that might occur to them as useful in promoting the inquiry about to be undertaken. The letter, which bore the date "February 9," was as follows:—

"In reply to yours of the 5th, I have great pleasure in being able to give a satisfactory account, because (you know, I think,) for the last five years I have had the care of Bylaugh Hall; and this has rendered it necessary that I should make most careful periodical inspection of the stonework; and, since I received your inquiry, I have made a special inspection, in order to ascertain the effects of the late unparalleled severe season: and it is positively impossible for any material to retain its surface more thoroughly.

Though, as you may remember, the hall is unusally exposed to the action of the sun and wind, there is no sign of decay to be seen in any part, and all that beautifully carved porch, and the enrichments on the south side, the finials, and open parapets, are as sharp and fresh as on the day the carver and the mason left them.

The only place where there is any failure is on the terraces in the south front, and there the stone appears to me not to have been so carefully selected, and has, in a few cases, cracked and blistered, as it were, as also have the Portland stone steps, to a slight extent.

I trust this account is all you require; but, if you want further particulars, I shall be most happy to give them to you."

This letter, he thought, disposed at once of the question which had been raised as to crystalline and amorphous stone. In his opinion the real solution of the mystery, as to how it was that one stone decayed and the other remained sound, was simply this,—that one was in town and the other in the country.

Mr. Fraser said that among the donations which lay upon the table was the copy of a lecture "On Building Materials," delivered by Professor Ansted at the Royal Institution, Albemarle-street, on stone-preserving processes. He (Mr. Fraser) assured the meeting that the lecture was a most interesting one, and would well repay perusal.

Professor Donaldson, V.P., then proceeded to read papers, including a description of M. Mariette's excavations at Ghizeh and Saccara; some observations upon the domestic architecture of the ancient Egyptians, as existing among the present Arabs; and an account of catacombs at Alexandria recently discovered. These particulars we have put into a separate form. Mr. Donaldson added, at the close of his observations on Egyptian matters, that, in passing through Marseilles, he had visited the cathedral in that city, and had brought away specimens of the marbles used in its construction. (These were laid on the table; also some pieces of rough and others of worked alabaster, specimens of the stone of which the Pyramids are composed, and also a piece of the mortar used to cement the blocks.)

Mr. Kerr inquired whether Professor Donaldson had found any zopissa on the buildings he had examined.

Professor Donaldson.—No, I did not.

Mr. Godwin, V.P., said that, in order to make their proceedings formal, he would move, what they had already signified, that a vote of thanks be accorded to Professor Donaldson, who had proved that evening that he had lost none of his old energy of character nor of his desire to serve the Institute. The narrative of his exploration of the monuments of ancient Egypt was full of subjects for reflection, and offered many points of contrast between the past and present. It occurred to him that the Serapeion, with the gigantic sarcophagi which were in its chambers, as described by Professor Donaldson, was one of the most extraordinary monuments remaining in Egypt. The account of it filled him with awe. When it was remembered what difficulty had been experienced in fashioning out of a single boulder a sarcophagus for the Duke of Wellington, the fact that here were at any rate 24—there might be 50 for what was yet known,—each four or five times as large as that in St. Paul's, raised feelings of wonder and admiration for a people who could perform such great things; and then, when, on the other hand, they heard of such a people worshipping as a god a bull which they themselves fed and they themselves killed, the weakness of human nature came before us in contrast, and led to contemplations of a striking character. A dozen such reflections arose, but he would be sorry to weaken the remembrance of the vivid and graphic relation they had heard, and so would restrain himself to moving that the warm thanks of the meeting be awarded to Professor Donaldson for his interesting observations.

Mr. T. H. Lewis said he did not quite understand Professor Donaldson to have described the form of the sarcophagi at Alexandria; and he wished to know if they were carved.

Professor Donaldson replied that they were all oblong, and that three or four of them were incised, not with hieroglyphics, but with lines. They consisted of two pieces only, of granite or basalt. Several of the bulls were in them, wrapped up in the usual manner, the eyes formed of glass, and the horns wound round with ligatures. When he stated that the funeral ceremonies of some of the bulls cost as much as 20,000*l.* each, there could be no doubt that the sarcophagus cost a large portion of the sum. The difficulty and expense of working the block of stone, and conveying it several hundreds of miles from above the first cataract of the Nile, must have been enormous.

Mr. C. Barry, in seconding the vote of thanks, observed that the paper which Professor Donaldson had read would be studied with interest by those who proposed to follow in his steps and to pursue the line of investigation which he had so successfully inaugurated.

Mr. Kerr inquired whether the sarcophagi bore the appearance of belonging to a succession of sacred animals; for, if the bulls represented a period of about twenty years each, these tombs would represent a period of nearly 500 years.

Professor Donaldson said he had failed to discover, in the dark and haste, any difference of age in the sarcophagi which he had examined. He then read an account of the Serapeion, by Mr. Birch, about to be published in the "Architectural Dictionary."

Mr. Kerr asked what was the size of the solid block of stone which supported Pompey's Pillar.

Professor Donaldson replied that it was about 7 or 8 feet square.

Mr. Kerr suggested whether it might not be a foundation stone bedded in concrete or rubble which had been removed; for one could scarcely imagine that the pillar rested on the stone alone.

Mr. Morris suggested that the right way to appreciate the paper they had just heard read would be to treat it in the light of the narrative of a ramble in Egypt. It was a paper of surpassing interest, and the author had spared no pains to make it practical and instructive.

In reply to further questions,

Professor Donaldson said that the French architect who had made the drawing of Pompey's Pillar exhibited in the room that evening was of opinion that the base had been supported in the middle of the solid block of stone described, but that trophies consisting of armour, or something of the kind, had been fixed at the corners, so as to give additional security to the pile. These, he thought, had from time to time been removed, and the boulders substituted.

Mr. Papworth called attention to the extraordinary difficulty which must have been experienced in getting the sarcophagi into their position. He confessed he could not comprehend how human force—for mechanical was out of the question—could be brought to bear so as to turn round and put into position, in such a place, a block of solid stone weighing sixty tons. While upon this subject, he wished to ask whether the Wellington sarcophagus was a block of solid stone? for he found, on visiting the tomb of Napoleon in the Invalides, that the sarcophagus there was not of one piece of solid stone, but was formed of five pieces.

The vote of thanks having been unanimously passed,

Professor Donaldson observed that a great deal had been said of late about drinking-fountains, and that he wished to say a word upon those which he witnessed in the East. They were not the miserable pigmy things which met the eye in London, and which were a disgrace to art and to taste; but they were large handsome structures, composed of marble or alabaster, bold and beautiful in design, and elaborate in their enrichments. They were raised by pious Mahomedans for the public weal; and there was generally a day-school above them, from which the voices of the children could be heard above the babbling of the water. Surely we might take a lesson from the Egyptians, and raise fountains which would not be a disgrace to the country and the age.

The proceedings then terminated.

A special general meeting of the members will be held on Monday evening, the 25th instant, to take into consideration the recommendation of the council with respect to the award of the royal medal and other prizes of the Institute for the year 1860, and their recommendations with reference to the medals for the year 1861.

THE ARCHITECTURAL ASSOCIATION.

THE ordinary meeting of members was held on Friday evening, the 15th instant, at the house in Conduit-street; Mr. A. W. Blomfield, vice-president, in the chair.

Mr. Walter, Mr. J. Adams, and Mr. J. Rusk, were, on ballot, elected members of the Association.

Mr. Harris moved a resolution,—"That the 3*l.* prize for a specific subject (being part of the 5*l.* given by Mr. Tite, M.P., to the Association), be awarded to the best design contributed by any member of the Association, and that the subject for the present session be "a school of art,"—the drawings to be sent in before the 5th of April."

Mr. Blashill thought it better to omit the words,—"the subject of the present session be a school of art;" and, after some discussion, an amendment,—"That the subject be submitted to the general committee for final decision," was carried.

Mr. R. Druce then read a paper entitled "An Architect's Audience." In the course of it the reader sketched representatives of the various classes who form that part of the public who appreciate more or less architectural works,—the poet, scholar, the frequenter of picture-galleries, and the intelligent mechanic; and showed what partialities and tendencies were naturally found in each class; and, in conclusion, went on to say,—I think that for some time, if not always, we shall have to consider the requirements and tastes of these classes of employers and critics, in broad principles, if not in a continuance of the details and easily recognized features of those separate styles, even although as we arrive we evidently are tending to two styles, which may merge in one of a free Round-arched style, and a free Pointed style. The three marked characteristics of the Classical, Italian or Renaissance, and Gothic, will long be looked for by their respective votaries, being the results of education, suitability to their respective habits of living and thought, as well as their architectural taste. These are some of the heads or main divisions of our audience; and, until quite of late years, they were the only classes that were capable of judging or of enjoying what was put before them, as much of the enjoyments of the buildings lay in the knowledge of their correctness, but I am thankful to say that our audience is extending day by day; and what do I mean by that? Do I mean that so many more people are educated by the numberless photographs, and the less cost of architectural books and plates? There is much in that; but what I do mean is this. That the masses of the people, whether educated or uneducated, have always been, and will always be, fonder of sculpture and painting than of architecture. That depends as much as it can upon itself alone; and that it is only quite lately that architects, occupied by their surveying their necessary business, and their measured proportions or copied mouldings, have only just begun to be anything like as fond of it as the general public itself. You will now get an audience wherever the chisel rings, wherever you work bas-reliefs and interesting stories on your walls. Where such carvings can be seen as there are at the Oxford Museum, or at one or two churches now building, every one will visit you. Where there is painting like that at All Saints', all will be attracted. You may please the Classic student if you will, with grandeur of proportion and security of effect,—the lover of Mediæval architecture by solemnity,—the lover of Renaissance by richness and luxuriousness,—the man of business by careful and business-like arrangement of plans and fittings, and boldness and massiveness of style,—the artist and poet by picturesqueness,—the workman by good work and skill, and poet thought; but depend upon it, in whatever style you work, you cannot fail to win all these; and add to them the uneducated and the poor, if you find room in your capitals and your walls for rich and varied sculpture of sacred subjects, and lives of great men, framed by the leaves of the wood and the flowers of the field. Thus and thus only shall—can—we make the most sensitive among our audience—the poet,—sing, in far-off future of our works;—

"Everywhere I see around me the wondrous world of art,
Fountains wrought with richest sculpture standing in the common mart;
And, above cathedral doorways, saints and bishops carved in stone,
By a former age commission'd as apostles to our own."

At the conclusion,

The Chairman observed that what Mr. Druce had said showed the necessity of designing in perspective. To accomplish this object it was very desirable to have a knowledge of landscape drawing. The works of Turner the painter would be found of great value to young architects in this respect. Without some knowledge of landscape effects an architect who had to design a building in a hilly country would, probably, erect a structure unsuitable to the landscape. It would generally be found that the architecture of a country was adjusted to the peculiarities of its physical surface. Thus, for instance, in Switzerland it was found that the churches and maisonettes were peculiarly suitable to the landscape; and, indeed, in all countries it was interesting to observe that the inhabitants of a country intuitively erected the most suitable buildings.

Mr. Blashill thought there was a good deal in association, and that it was generally found that the aborigines of every country designed their rude and primitive dwellings with a view to meet the peculiar requirements incidental to climate and situation.

CONGREGATIONAL CHURCH, LITTLEHAMPTON, SUSSEX.—*Mr. J. G. Stapleton, Jun., Architect.*

A desultory discussion then ensued with reference to sculptured ornamentation, Mr. Lewis and other members contending that the public mind in this country was not sufficientiy instructed in, or familiar with, sculpture to warrant its extensive use as a means of exterior decoration. He iustanced, as an illustration, the mutilation of statues and carved work in our ancient churches and cathedrals.

The Chairman said he thought it scarcely fair to insinuate that the humbler classes of society were iconoclasts. The mutilation of statues and carved work in Westminster Abbey and other similar buildings was to be traced to the so-called "Reformers," and not to the common people.

It was announced that the next drawing in the class of design would be "a stable and coach-house;" and that, at the next meeting, a paper would be read by Mr. G. B. New "On Brick-work."

CONGREGATIONAL CHURCH, LITTLEHAMPTON, SUSSEX.

The site for this church is on the estate of the Duke of Norfolk, in the centre of the town. The style of the design is Early Decorated. The material selected for the walls is Plymouth rock, dressed with Caen stone.

The roof is open, and the walls are sufficiently high to admit of the erection of galleries at a future period.

The total accommodation is for 300 persons. The contract has been taken for the whole work, including a large school-room and boundary walls, for 850*l*.

Mr. J. G. Stapelton, jun., of London, is the architect.

PREMIUMS OFFERED BY THE ART-UNION OF LONDON.

The council of the Art-Union have taken a very admirable step. They have always felt the importance of connecting art and manufacture, of the wedding of Venus to Vulcan, as their annual reports, year after year, serve to prove. Anxious still further to carry out this view, with special reference to the schools in connection with the Science and Art Department of the Committee of Council on Education, they propose, with the concurrence of that Department, to set apart the sum of 100*l*. each year, to be offered to the pupils in those schools, for the production of designs, on certain conditions. In their circular announcing it, the council dwelt on the desirability of the study of the human and animal forms, a full acquaintance with which gives the student a power of conception and facility of treatment unattainable otherwise. These qualities are essential for raising ornamental art to a high state of perfection, and for enabling the productions of England to compete successfully with those of other countries where the art education of the manufacturer is more cultivated. The amount will be divided into five premiums of 10*l*. each, and ten premiums of 5*l*. each, to be competed for by persons being *bonâ fide* pupils in any of the Schools of Art in connection with the Department of Art. A list of subjects has been forwarded to the various schools. The proposal can scarcely fail to meet with a hearty response.

Each subscriber for the current year is entitled to an engraving, by Willmore, after Turner's well-known and magnificent picture, "Italy: Childe Harold's Pilgrimage," now in the National Collection at Brompton. The impressions are ready, and subscribers receive them on paying their guinea. The print is full of beauty, and a good return for the subscription irrespective of the prizes, in the distribution of which every subscriber has one or more chances according to amount paid.

LECTURES, ARCHITECTURAL MUSEUM.

On Wednesday evening last, Mr. Thomas Lott, F.S.A., gave a very interesting account of the architectural antiquities of the London Guildhall, illustrating it with quotations from old records in the Guildhall library. There was a good attendance.

Mr. Blomfield, on the part of the committee, proposed a vote of thanks to Mr. Lott, which was carried unanimously.

BUILDING FOR PROPOSED EXHIBITION OF 1862.

A letter has been addressed by the Royal Commissioners to the Council of the Society of Arts, in the course of which the following statement occurs:—

"The arrangements made by the Society of Arts, when negotiating for a site on the estate of the Commissioners of 1851, and their announcement that the Exhibition was to include pictures,—a branch of art not exhibited on the former occasion,—rendered it necessary to contemplate the erection of a building in some parts of a more substantial character than that of 1851.

A plan was submitted to the Commissioners by Captain Fowke, R.E., who had been employed by her Majesty's Government in the British Department of the Paris Exhibition of 1855. The design was adapted to the proposed site, and was intended to meet the practical defects which experience had shown to exist both in the buildings in Hyde-park and in the Champs Elysées. It appeared well adapted for the required purposes, and its principal features were of a striking character, and likely to form an attractive part of the Exhibition. The Commissioners submitted the design to the competition of ten eminent contractors, four of whom took out the quantities. Three tenders (one a joint one from two of the contractors invited), were sent in on the day named in the invitation, but all were greatly in excess of the amount which the Commissioners could prudently spend, with a due regard to the interests of the guarantors.

The Commissioners have, therefore, had under their consideration, modifications of the plan, which, without destroying its merits, would materially reduce its cost."

We understand Mr. Kelk is the contractor likely to be treated with.

LONDON STREET ARCHITECTURE.

OFFICES, BISHOPSGATE-STREET.

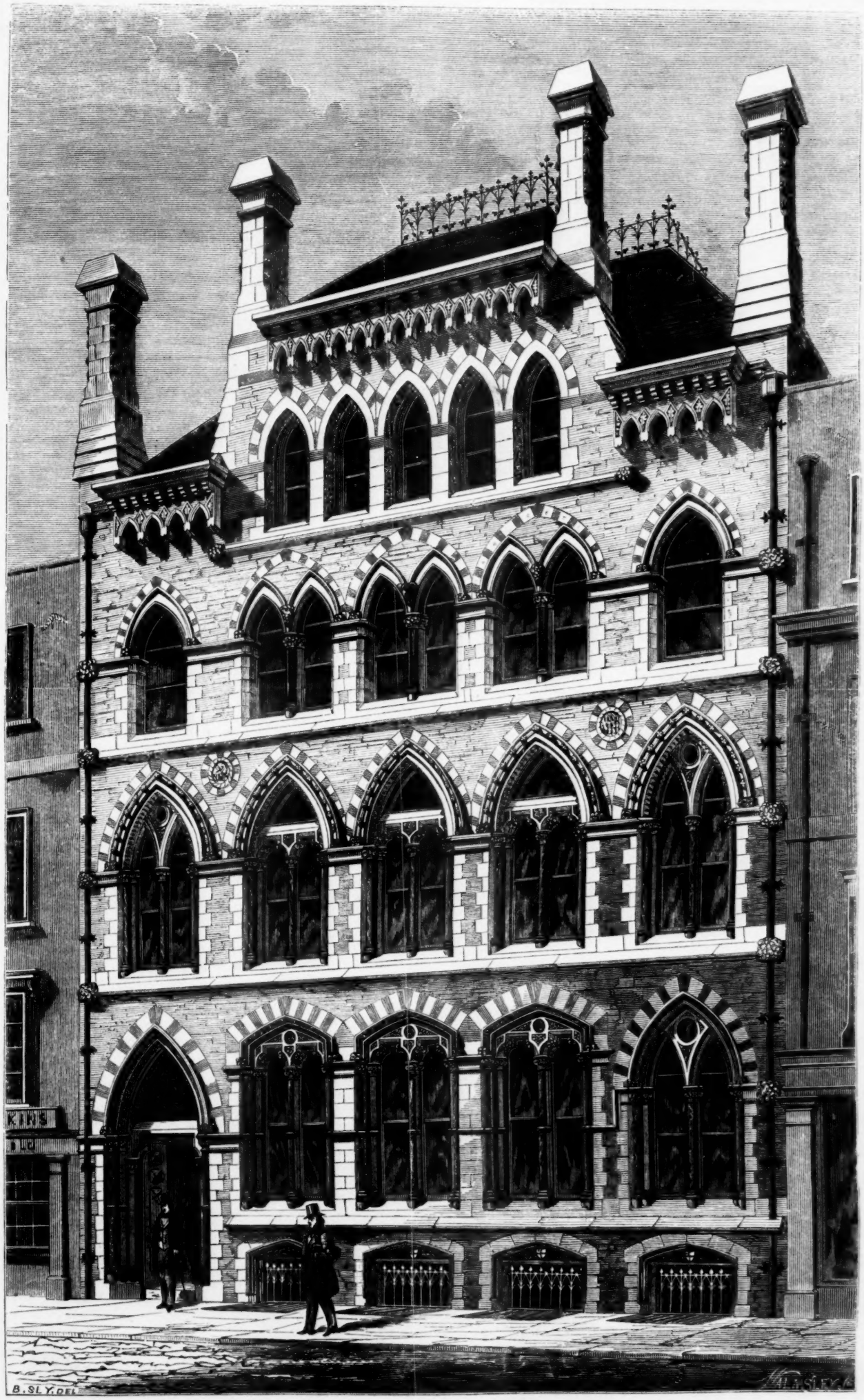
Messrs. Soane & Page's new offices, Bishopsgate-street, City, were commenced in April, 1860, and are now fast approaching completion. The building occupies, with an area, or court, at back, a plot of ground of 45 feet frontage, by 77 feet in depth, and comprises, with the house-keeper's apartments, on the upper floor, ten or twelve suites of offices,—altogether about thirty rooms.

The structure throughout is substantially built of stock bricks, in English bond, except the front elevation, which is of deep-red brick, with Bath-stone dressings; and a green stone is introduced with good effect in the relieving arches, cornices, &c. The detached shafts, columns, and mullions to the whole of the windows and doorway, are of polished serpentine marble, except to the basement and top story, which are carved stone. There is a very considerable amount of carving, representing foliage of various kinds, with birds and animals appropriately introduced, which gives great richness to the design. The roof is covered with Brozeley tiles, having an ornamental iron cresting along the ridges. Some of the floors are made fire-proof, on Fox & Barrett's principle. All passages and landings are of Portland stone, 5 inches thick, on Portland stone cornices, and carved corbels. There is a handsome Portland stone staircase, a few feet within the entrance, affording direct access to the various floors. Each suite of offices is provided with a fire-proof strong room, lavatories, closets, and other conveniences; and, what is a marked feature throughout the building, an abundance of light is provided to all the rooms. Most of the joinery is of pitch pine, only varnished. The internal details are very good. The fire-places are fitted with Caen, Bolsover, Mansfield red, and other stone mantels, variously designed; some, in the principal rooms, being enriched with polished marble, and elaborate carvings. Stone fenders are provided to all fire-places, and the hearths and sides of grates are finished with various coloured tiles.

The proprietors of the building are Messrs. Soane, Son, & Page, a well-known City firm.

The architect is Mr. W. Wilkinson, of Oxford; the contractor, Mr. Willson, of Southwark, whose tender was 7,600*l*. The carving is by Mr. Suffolk, of South Lambeth. Messrs. Hart & Son have provided the ornamental metal work. The whole has been done under the superintendence of Mr. J. Willson, jun., and a resident clerk of works, Mr. Deacon. It may be pronounced a very successful work.

Society for the Encouragement of the Fine Arts.—The Lord Mayor has granted the use of the Egyptian Hall, in the Mansion House, for a *conversazione*, accompanied by an exhibition of works of art, to take place in May next.



LONDON STREET ARCHITECTURE: OFFICES, BISHOPSGATE STREET WITHIN.—MR. W. WILKINSON, ARCHITECT.

THE FOUR SISTERS; OR, SOME NOTES ON THE RELATIONSHIP OF THE FINE ARTS.*

RETURNING to ourselves, we may remark how all our fine arts yearn for representations of our own kind. Architecture and decoration, as well as painting and sculpture, are ever seeking to introduce them. How early, almost with the very commencement of the architecture and manufactures of the world, do representations of the human form appear, as in hieroglyphics and early pottery. Look through our museums of ancient objects, or the pages of early illuminated books, and see the many countenances that meet your eye. Even in a landscape, however beautiful, the scene appears incomplete unless there is something which tells of the presence of man, as a well-placed figure or group; and if these are absent, how welcome is even the thin grey thread of smoke tapering up from amid the trees in the distance, to tell us a habitation is near! Nor is a sea view complete without a group of mariners, a sail on the horizon, a ship, or a fisherman's boat.

Thus it is also with architecture immediately she rises beyond being merely a useful art into being also a fine art. She naturally then seeks at once the aid of representations of man, both in sculpture and paintings. These are the voices with which she would fain sing to us. Her own expressions are but the instrumental music. Some styles of architecture welcome these human forms of a higher character than others, and insomuch, as I have here expressed before, are in themselves superior. Some styles, as those adopted by the Mahomedans, are without these adjuncts; but this has arisen solely from superstitious restraints. Were these removed, high art might probably harmonize with their grander examples. As it is, however, the followers of Islam have been fertile in resources for supplying the deficiency with enhancements of a lower grade; and most beautiful and elaborate arabesques, united with texts of the Koran, and various other details drawn from the vegetable and mineral kingdoms, have been combined to produce, in various of their structures, the perfection of jewel-like effect.

Probably it will, without demur, be allowed at all hands, that architecture, as a fine art, cannot reach her highest expression without the presence also of the highest class of painting and sculpture, which arts, although highly to be assisted by architecture, yet, nevertheless, possess their intrinsic value in many instances quite apart from her. This was also the case in ancient times as in the present. Indeed, Pliny says, in regard to the paintings of his own time, not far from the commencement of our era, the time of our Saviour, that the pictures which were made moveable, that is, like our pictures in frames, were considered superior to those which were painted on walls. As the passage is quaint and interesting, I will if you please, read it.

He is speaking of a certain Ludius, who seems to have been a very popular artist of that time, and who introduced a light, facile, and humorous style, such as you may notice in some of the minor decorations from the ruins of Pompeii and Herculaneum.

"Ludius was he," Pliny says, "who first devised to beautify the walls of a house with the pleasantest painting which is in all variety; to wit, with the resemblance of manors, farms, and pleasure houses in the country; harbours, vineyards, and flowerwork in knots; woods, forests, fishpools, conduits, rivers, and rivulets; and on their banks, passengers, some walking or riding to their farms, mounted on mules or asses, or in waggons and coaches; and on the streams some sailing, and rowing to and fro. In one place a man should see folks fishing and angling; in another hunting the hare, the boar, the fox, or the deer, both red and fallow. In these paintings a man would see fair houses standing in the marshes, to which the paths would be ticklish and slippery, with figures of women afraid to set one foot before the other, at every step ready to slide, some bending forward their heads as if they carried burdens, and all for fear lest they should catch a fall; and a thousand other humorous conceits full of pleasure and surprise." This apparently describes a different style of decorative painting from any which is in practice now.

"This same Ludius," Pliny goes on to say, "devised walls without doors, and abroad in the open air, and to paint cities standing by the seashore; all which kind of painting pleaseth the eye exceedingly well, and is moreover of little cost. Howbeit neither he nor any artificers of this kind, however much otherwise respected, grew ever to be famous or of great name as painters. That felicity was only obtained by those who painted on tables,"—that is, on separate tablets or tableaux, like our separate pictures in frames; "and, therefore," he says, "in this regard, we have the greater admiration for venerable antiquity. For, in old times, painters loved not to garnish walls only to please the master of the house, nor yet in such a manner that cannot stir out of the place and be saved when fire cometh; which, on the other hand, can be done with ease, with such paintings as are on tablets."

Thus with the ancients, as with the moderns, there were easel pictures in moveable frames, as well as those painted on walls, as we do now in fresco, encaustic, or water glass; so that, although they were more constant than we are to the union of the arts, yet they produced many pictures and statues suitable for removal. With the easel pictures of the present day this is markedly the case. Some pictures, indeed, now so frequently change hands, that they are almost a new form of circulating medium. Easel pictures, indeed, of the present day, if of moderate size, are rarely executed with reference to any particular situation, and, so that they are well lighted and arranged with just colours, they are seen excellently well in their gold frames, even in connection with the smallest amount of the architecture element, as is the case in the picture-rooms here in South Kensington. The structure in these rooms is of the simplest and cheapest kind, only costing 2½d. per cubic foot; but it well performs its mission of justly exhibiting the works. On the other hand, we have in London examples of very ornate galleries, where much talent and expense have been applied to their architectural features without this happy result to the pictures.

It may appear, in considering this point, that when galleries are built expressly for the exhibition of pictures, especially if the pictures are open to be changed, it may usually be well to have their galleries plain; but when, on the other hand, paintings are executed in direct connection with the architecture, and in degree at least to illustrate the purpose or history of the building, that then the fullest and most complete architectural treatment is welcome. Thus the treatment in a gallery, if constructed to exhibit a miscellaneous collection of pictures, as those of Mr. Sheepshanks, is, as regards this point, quite a different subject from that of any grand department, of which the pictures would be part and parcel, as might be most appropriately the case in Westminster Hall, the bare sides of which might most justly be decorated in compartments, with such subjects as Mr. Cope's "Trial by Jury," and Mr. Redgrave's "Loyalty," which fine works have never as yet been carried further than the cartoons, as they were exhibited in 1844 in that very hall; or well might that venerable hall receive fixed pictures on its walls of some of those important historic events which have taken place within them,—within those very walls; as some of the public trials which have been conducted there, as that of Wallace, in 1305; of Strafford, in 1641, when the King and Queen and Prince of Wales, looking through a trellis-work, saw and heard the proceedings; the trial of Charles I. himself, a few years after, in 1648, &c.; also that of Warren Hastings, which began in 1788, on which might be portrayed various of the remarkable men of the time besides Hastings, as Pitt, Fox, Burke, Sheridan, Grenville, Lord Mulgrave, Dundas, Thurlow, Windham, Wilberforce, &c., which would be of great interest.

In the cathedral of St. Paul, also, which is now, so justly, being restored to the original arrangement purposed by Sir Christopher Wren, it occurs that its lower architectural spaces would be well occupied by paintings of some of those noble and instructive events in that apostle's life which have not as yet been represented in art. Among these are the unfurling of the banner of the Church in Antioch, in the year 41 of our æra, when Christians were first called Christians; and also St. Paul preaching publicly at Rome chained to a Roman soldier.

In both these cases, of St. Paul's Cathedral and Westminster Hall, the pictures would be in such compartments as are defined or suggested by the features of the structure, as by the divisions of the hammer-beams overhead in the Westminster Hall.

In most respects this perfected and illustrative treatment, in which architecture and painting unite their powers, is evidently quite distinct from that of current exhibitions in galleries constructed for that purpose, and for miscellaneous disconnected works. The two subjects are different now as they were in olden times.

The same thing also applies to sculpture. Sculpture is of the highest advantage to architecture when the two form alternate phrases of the same expression, and when their details are designed in conjunction. On the other hand, galleries special to sculpture are occasionally required in which individual statues and groups unconnected with each other and with the architecture may be exhibited. In these cases, although a contrary treatment has been much accepted in this country, it is better to have a mild atmospheric coloured background into which the edges of the statues melt, rather than a strong dark red, which cuts them out sharply and renders them flat and harsh. This forms part of the subject of the union of pictorial effect with statues, and the contrast of the two methods may have been observed in the sculpture gallery here, as compared with that of the Royal Academy.

It may occur, however, as regards collections of works of sculpture, darkened and partially discoloured by age, that the tint of background may be well different from that suitable when they are white. This, however, is the reason which has been given me for the flaming vermilion background placed behind some of the ancient works in the British Museum.

In galleries for the exhibition of miscellaneous and current works of sculpture by themselves, I know of no treatment of background better than drapery of some mild atmospheric colour and texture, yet possessing sufficient contrast to set off the figures justly. In this method the drapery may be hung somewhat flat and panelwise, behind the statues, with vertical columnar folds in the intervals between them. This is a semi-architectural as well as pictorial treatment, which, with a like consideration of the pedestal, floor and ceiling in suitable harmony and contrast, may be easily rendered decorative. As a matter of convenience also, it is evident that this draperied method allows of adjusting the folds of the background, so as to suit the size and character of each work placed before it, and to meet the question of change of works. In the temporary accommodation in the Museum here, of what eventually we hope to see expand into a fitting representation of the British School of Sculpture, past and modern, you see a tint for the background, which has been a good deal favoured of late; but, alas! in this case merely crudely distempered on the walls, instead of being presented by the rich folds of drapery. In the front view of the Venus of Melos, in the Louvre, you get this fine work against a rich curtain which hangs at the end of the apartment, and the effect is fine and satisfactory. Also, the introduction of tapestries of various colours and pictorial character, in union with statues, may be made conducive to most pleasing and harmonious effects. This would lead naturally up to the subject also of the *direct* association of sculptures and paintings in the *same* apartments, as at Florence, a mode well worthy of consideration on any important occasion which may give an adequate scope for it. This mode is also available in degree in more usual exhibitions of a miscellaneous and current class. It is when the architecture, paintings, and works of sculpture are *expressly* designed for each other, the *highest* treatment comes into play. That part of the subject, however, is so extensive, that I avoid entering on it now.

There is, however, one kind of sculpture on which I would say a word or two,—Relievo. This is a peculiar art, midway, as it were, between drawing and sculpture. You see all the forms are more or less flattened. It is, indeed, the representation of true form by false form, and, even when most complete, is incomplete. This elegant and charming art has always been of the utmost use in connection with art and decoration from its power of adaptation to almost any surface. Also, if polychromy, or the painting of sculpture with various colours, is admissible at all, it is more admissible on low relievo, such as Donatello's or as seen in some of Luca della Robbia's works,—that on statues in the round,—because of this fact, namely, of relievo being more an appearance and a suggestion than a reality; as painting is in comparison with sculpture. Also relievo is capable of combining many figures, which sculpture proper is not. The less, indeed, the number of figures in a group of sculpture, the more is it likely to be effective. Indeed, the single figure is the stronghold of sculpture proper. When sculpture adopts many figures in the round, they no longer combine well on one pedestal. They must be placed on several, or spread out in relievo fashion against a wall, as in the classic tympanum. Within its own limits, however, sculpture is remarkably independent, and nowhere, perhaps,

* By Mr. John Bell: see page 95, *ante*.

looks better than in the open air, with the sun on it, and the blue sky and fleecy clouds for its background.

In this view, sculpture (proper or in the round) and architecture are similar in their independence. A building well stands alone, or apart in the open air on a rock; and so may a statue. On the other hand, painting and decoration have to be applied to some artificial surface, either fixed or moveable.

I have now run briefly over some of the diversities in the characters of those four sisters of the Art family who have dwelt together, more or less, in all ages, especially in those when they have most flourished. To foster their suitable association is one just object of all the systematic art education that has, of late years, taken form and place in this country. It is certainly one object of the Government establishment of art here in South Kensington.

Let us view for a moment the character of the present contents of the art section of the Kensington Museum. It comprises some admirable collections of fine paintings, some ancient and modern sculpture, some representations of different styles of architecture and examples of details, and a most valuable selection and great variety of decorative objects in very many materials and of different ages and styles; and, in addition, an increasing art library, adapted to illustrate and give information on most of these subjects. I note all this but briefly, for the public have but to visit this Museum, as they do largely, to be aware of the wealth of various art already collected here, and in the steady progress of enlargement and expansion. I am but one of the public myself, and have no connection whatever with this establishment; but I find my love of art continually bringing me within its walls, which also, I may say, I rarely leave without having learned something fresh to repay me for my visit.

There is one thing, however, which must strike all who visit this Museum, namely, its *miscellaneous character*. Each section is well and intelligently arranged. Each limb, so to speak, may be well adjusted; but they want a backbone. The vertebrated column which should supply this, should, I conceive, be a universal museum of architecture. It is to architecture, as the eldest of the sisters, that we must look to marshal the others. We have seen that she is the only one of the fine arts that appears absolutely necessary. It is on the firm basis of the directly useful that her foot rests. She has been continuous throughout all ages, and therefore she can best furnish the historic thread on which the jewels of the other arts are strung, and be the logical index to their age and character. In the collections of painting, sculpture, and decoration in this place, there is no idea of restricting the examples to any period or country. The architectural collection, therefore, both for its own sake, as well as for that of the other arts, should be as universal.

When the present existing section of architecture within these walls, now occupying the western gallery, and part of the space beneath, was first formed in Cannon-row, Westminster, in the year 1852, it stood alone, surrounded by none of the other arts by which at least, in degree, it is associated here. Nearly three years ago it came here. It is a most fortunate circumstance that it did so, both for itself and for the sister arts. Its present social position is more logical than its former solitude. It is not good for an art any more than for man to be alone. However, at present, this presents little more than juxtaposition without intercourse. But a fuller use should be made of the neighbourhood of the sister arts. They should illustrate each other. The present collection of architecture is restricted to the illustration of some two or three styles, and that not adequately; but what there is affords an excellent nucleus for future development into a Universal Museum of Architecture, embracing all styles, and worthy of the time and country.

It is highly gratifying to be able to state that, since this time last year, when the committee of the Architectural Museum had already endorsed their approbation of this proposition, and the Department also had signified its approval, that this subject has made important progress. For instance, before a committee of the House of Commons it was last session favourably reported on by Mr. Gilbert Scott, as representative of the Council of the Architectural Museum, and the mode of giving it form and being is occupying careful attention with the authorities here.

However, it may be well to repeat briefly what this Universal Museum of Architecture means. The illustration of architecture which should correspond with this scheme, would range over all man's architecture, from the earliest times to the present. It would range from the hut of the savage, and the stone circles of the Druid, through the Primitive, Cyclopean, Egyptian, Indian, Hindoo, Chinese, Assyrian, Persian, Greek, Etruscan, Roman, Byzantine, Romanesque, Saracenic, Arabian, Mexican, Muscovite, Italian, Renaissance, Gothic, of its various kinds; Elizabethan, English, Italian, Modern, &c. &c., under any heads of nomenclature and arrangement that the best authorities might suggest. I would avoid repetition of what I have said on the previous occasion, but I may say generally that this might be placed in a tangible form before the public, not only by models, drawings, engravings, and photographs of parts, but by means of adequate representations of the perfect, and in many cases of restored, building, in such a sort as to illustrate the subject *clearly*.

I especially mention *clearness*, as this is a most essential part of the public use of such an arrangement—namely, that it should be so clear and perspicuous that the workman, even within the limits of his hour or two of leisure, may learn broadly "how man has built in all ages and climes."

Now for the practical part of this. It might not be difficult to imagine a great building, covering acres, that would house this great project; under such an arrangement, also, as should provide that all the four arts should educationally illustrate each other. But such a great building is a great expense, and is not available just now. If, however, we cannot have all we desire at once, let us see what perhaps we might have shortly. If we cannot have this great museum of architecture at once, perhaps we might, in the mean time, have an epitome of it on the same principle of universality, although on a reduced scale.

The first requisite, however, even for this, is increased space, so as to allow the present sectional Architectural Museum, which is chiefly Gothic, to expand into a commencement on the universal plan. I will venture to allude to one mode of obtaining such space, which appears possible. Last year a grant of money was made to the Kensington Museum to extend its area and capacities: those additions are begun. When completed, it seems feasible that they might receive all the collections except the architectural one, out of the present three-arched iron structure, which then might be given over for architecture to expand in, which she would readily effect with the materials which are at present here, and such collections and additions as are only waiting for space to come in. If this idea were acted on, it might be well at once to remove the galleries of that building, and to arrange the whole architectural epitome on the ground-floor. All the styles would thus be equally and thoroughly lighted. Also it might be desirable to adjust high divisions, affording wall space for architectural elevations and ground-plans, details in the flat.

Now, I by no means put this occupation of the present iron building forward as the only or the best mode for the housing of the epitome of all the styles of architecture, but I mention it because after all I have said, it might seem incumbent on me to indicate one way, at least, in which it might seem that it might be carried into effect, and that without any great delay or additional expense.

This epitome and its shell, however, would of course be but a temporary arrangement, and but the germ of the future establishment. Nevertheless, even in such a form it would be a great boon to all classes of the public who desire art instruction. Also it would give a local habitation and a name to the growth of the whole scheme, until it might eventually be established on an adequate national footing, maybe not far from this neighbourhood.

Such a universal illustration of architecture as this, with a good *catalogue raisonné*, would be a great addition to the means of education of this metropolis, and would be calculated to produce various excellent results to architecture itself, on which I have not time to dilate now. But we must still hold in mind that this plan is not solely an architectural one. It is also exactly calculated to afford the best organism and arrangement, chronological and characteristic, of the other fine arts, and be, as it were, the magnificent index to the works of the other three sisters, of all times and countries. By this means the eye and mind would be led consecutively down the stream of art from the earliest times to the present, showing how such and such characters of painting, sculpture, and decoration existed contemporaneously and in conjunction with such and such styles of architecture. This need not be done by mixing up the architecture, painting, sculpture, and decoration of one period altogether, but by a judicious system of reference. Supposing, when this scheme is developed and the building for it erected, that the Universal Architectural Museum should occupy the central space or avenue, with galleries branching off therefrom on either side, containing the examples of the other arts, when by juxta-position and alternate reference you might attain readily to a view of how the sister arts worked together in each time and country.

For instance, to take one period of the art of the Romans in the early times of their empire. When Augustus triumphed that he "had received Rome of brick, and left her of marble." As a representation of the art of that time let us have a line struck, as it were, across the progress of art then, illustrating the architecture of this period of the Romans. Then, also in side galleries, with references, representations of such paintings of the time as we have data for. Also, such statues as then were made, chiefly by Greek sculptors, in Rome,—then the decorations of the time as applied to pottery, metals, draperies, arms, ships, glass, dress, &c. You see what a picture you would have at once; and by this means, carried out in modern as well as ancient times, what a series of historic pictures you would possess in following out chronologically this plan. On the details of this, much might be said, but the time warns me to bring my observations to a close. As regards the execution of this plan, I would only notice that the unity of its idea and the universality of its character by no means entail that all periods and styles should be equally developed at once. In fact, it is evident that they must be developed at present most fully in those directions and sections for which there are most facilities and materials already here. To depart from this would be obtrusive, and, perhaps, pedantic. Yet I conceive that from the very outset, even of arranging the epitome (the preparatory stage in which this plan must first appear), it is essential that the universal principle of the plan, as well as its unity, should be emphatically expressed, or its value would be lost or obscured. Also, from the commencement, in this universal treatment, it is evident, as I have said before, that the utmost clearness of arrangement should be sought to render it in the most direct manner, and to the fullest extent, educational. For this purpose, even in connection with the epitome, it might be of assistance to have a chronological chart of art prepared analogous to that of history known as the Stream of Time, originally from the German of Strass. Such a chart of art, as placing the whole subject chronologically and sectionally before the eye of the student at once, would also be very useful in all the schools of art throughout the country. Now that education, the great subject of the day, is occupying so many of the best minds, it is not necessary to illustrate more fully the direct, instructive action of the above plan, which, indeed, would also be calculated, collaterally, to convey, in some degree, a knowledge of general history as well as of art.

In conclusion, I may remark, returning to the province of the fine arts, that their due combination is not sufficiently the practice in this country. We witness on all sides shortcomings in this respect. The arts of architecture, painting sculpture, and decoration, do not sufficiently work together. To educate towards this both the student and the public, is one object of all our national art education, and is also one object of the universal art plan of which we have been considering a sketch to-night. It appears feasible that even within a short time an epitome of the Universal Museum of Architecture, as an educational organism also for the other arts, is practicable, which at least would at once be a recognition in the way of direct educational illustration of that relationship of the four sisters which has formed the title of this address.

As regards this sisterhood, their diversities of character and yet family likeness, I feel I have offered but a few discursive hints. Indeed, I have only attempted to present a few scattered views which occur in the landscape over which they reign together. Yet some spots more especially belong to the one art, some to the other. Architecture, painting, sculpture, and decoration, are individual arts, as well as a sisterhood. It is not necessary that they should always be together to prove their attachment, or be on all occasions companions; although, assuredly, they should ever be on the best terms, and even at a distance should yet correspond like dear friends. When you invite one of a family, it does not always follow that you desire the company of them all. One lover of art may desire simply the company of a collection of easel pictures in a commonplace house—very well; another may desire a

collection of sculpture, *per se*; another may devote himself to build a church, without any painting or sculpture at all, and with but a small amount of decoration; and another may desire solely a collection of majolica or Palissy ware, or Venetian glass, or decorative metal-work, &c. All these tastes are good in their way, and may bear good fruits. It would not do for the four sisters to be inseparables, and always together. It would be very inconvenient, and perhaps pedantic. Doubtless, they should have the utmost individual freedom to visit their friends, and to confer benefits in their separate capacities. Yet, assuredly,—although when abroad there is no necessity that they should always be talking about their family, or acting under any undue restraint,—when *quite* at home, they should also be *quite and altogether sisters*.

OLD SMITHFIELD MARKET.

THIS noted site has now for some years been in a very forlorn and neglected condition. Attention has been more particularly drawn to this lately in consequence of a bill-sticker being charged, at the Guildhall, with posting long narrow bills against the pen fence in Smithfield.

An officer said he saw the defendant putting up a long narrow bill; and on being asked where, by the magistrate, Col. Wilson, said it was upon the woodwork of the pens, and there were hundreds of them stuck up. Col. Wilson.—Well, what have you brought him here for? The officer informed the magistrate that it was not allowed; and the City solicitor also said that it was an offence. Col. Wilson.—Then let the City solicitor prosecute. The man has committed no offence that I can deal with. I am only surprised that the woodwork should have been allowed to remain and rot there for so many years after the market has been removed, when the space might have been cleared and made a promenade and airing-place for the inhabitants of the neighbourhood. At all events, as long as the woodwork stands, I can see no harm in covering it with bills. The defendant is discharged.

THE CONCENTRATION OF THE LAW COURTS.

THIS very desirable and important project has incidentally formed a subject of some little discussion in the House of Lords, in which Lord St. Leonards opposed the project. The Society of Lincoln's-inn, his lordship said, proposed to lay out 100,000*l.* of their own money in building two equity courts; and it was proposed that out of the income of the suitors' fund of the Court of Chancery there should be paid an annual rent to the Society, which it was estimated would amount to about 4,000*l.*, that fund being already burdened with a yearly expenditure of 2,000*l.* for chambers. The plans might be carried into execution in a twelvemonth; and this was all that was required for the proper administration of justice. His lordship, however, objected to the appropriation, as illegal, of any portion of the suitors' fund in carrying out the general project of law-court concentration. He admitted that certain advantages would arise from such a concentration, but in some respects great disadvantages also. With regard to the evidence in favour of the scheme, he understood that its principal promoters were the Incorporated Society of Solicitors, in Chancery-lane; and he believed it was a matter of the greatest importance to them; being, as they were, great houses of agency for country solicitors. It was proposed, however, that 1,400,000*l.* should be taken from the Suitors' Fee Fund; but, without doubt, the fund in question belonged wholly to the suitors in the Court of Chancery.

The Lord Chancellor said it had for years been notorious that the courts for the administration of justice in this country were inadequate in their accommodation; and so strongly did the Earl of Derby feel this when he was in office that he issued a commission to inquire into the subject. That commission, in which the different interests were ably represented, consisted of Sir J. Coleridge, Vice-Chancellor Page Wood, Sir G. C. Lewis, Bart., Dr. Phillimore, and Mr. J. Young; and they unanimously concurred in the opinion that it was necessary there should be new courts, that they should be concentrated on the site which had been so much criticised by the noble and learned lord, and that the suitors' fund might be legitimately applied towards the expense of their construction. He had to announce, on the part of the Government to which he belonged, that though the measure was originated by Lord Derby's Government, they were most anxious to follow in his footsteps in this respect, and they had prepared a bill on the subject which would be immediately brought into the House of Commons, unless the threatened injunction with regard to the Suitors' Fee Fund prevailed. He agreed entirely with the commissioners that it was most desirable that the courts of equity and common law should be concentrated upon one spot. The commissioners had selected the area; and he believed that if the plan were completed it would be most conducive to the health and ornament of the metropolis.

Lord Cranworth said he was of opinion that the state had a right to deal with the suitors' fund as it chose; but he did not see the advantage of applying the interest of that fund to the concentration of the law courts, because that interest was already all appropriated by Act of Parliament: nevertheless, he concurred in thinking that the erection of the new courts of law, on the plan designed, was a very desirable object; but he would express no opinion as to whether that object was worth the cost.

PROPOSED ARCHITECTURAL ALLIANCE.

NORTHERN ARCHITECTURAL ASSOCIATION.

ON Tuesday, the 12th inst., after the secretary. Mr. Oliver, had read the second annual report, the following office-bearers were appointed:—President, Mr. Dobson; vice-president, Mr. Moore; treasurer, Mr. Dunn; secretary, Mr. Oliver; committee, Messrs. Austin, Pritchett, Watson, Thompson, and Walker.

The secretary then read a report on the subject of a proposed Architectural Alliance. The committee, with the assistance of Mr. Pritchett, had corresponded with the following architectural bodies on the subject;—Royal Institute of British Architects; Institute of Scotland; Architectural Association; Liverpool Architectural Society; Birmingham Architectural Society; Glasgow Society; Manchester Architectural Association. Replies had been received from the Liverpool Architectural Society, the Glasgow, the Birmingham, Royal Institute of British Architects, Manchester Architectural Association, and Architectural Institute of Scotland. From the unanimous opinion expressed in the above correspondence, the committee had every confidence in reporting on the possibility and desirability of the formation of such an alliance.

Mr. Pritchett submitted a general outline of the projected institution, and moved—"That the scheme now read be referred to the committee, and that they be requested to print it, and forward it (with any alterations they may see fit to make) to the different members of this association; and call a special meeting, within a month, to consider the same."

Mr. Moore seconded the proposition, which was carried *nem. dis.*

After a conversation on the scale of professional charges presented by the committee, it was resolved to hold a special meeting for the consideration of the same.

THE INDUSTRIAL MUSEUM OF SCOTLAND.

THE commencement of this work is talked of. It is for little more than one-third part of the proposed structure that authority has been given to take tenders at present. The site of the Museum comprehends not only the ground purchased six or seven years ago, at a cost of 7,000*l.*, but the whole central area of Argyle-square, and the houses on the south and west sides of the square, for which about 12,000*l.* will be paid, and of which occupancy will be obtained at Whitsuntide.

According to the *North Briton*, the elevations of the structure, as finally approved by the Treasury and Board of Works, are designed by Capt. Fowke, of the Royal Engineers, who is the architect chosen for the Great Exhibition building of 1862 at South Kensington. The detailed plans for the interior, continues our authority, are, we understand, by Mr. Matheson, of this city. The area to be covered by the building will be about 400 feet by 200 feet. Towards Argyle-square, or rather towards the new street which must come in lieu of it, the Museum will exhibit a light façade in the Venetian style of architecture, combining massiveness of outline with elegance of detail. The wings of the building will exhibit three stories, and the centre two. The centre façade will be somewhat recessed, and will show a frontage of about 240 feet, and over this whole breadth the recess is filled in with a grand flight of steps. The building will stand upon a rustic basement at a considerable elevation above the street, and this high platform level will doubtless give it an imposing appearance, the height of the roof being about 90 feet.

DOINGS IN IRELAND.

A NEW church has been built at Nenagh, co. Tipperary, under the Ecclesiastical Commissioners. The plan is an oblong, and consists of nave, chancel, south aisle, north and south entrance porches, vestry-room, and a tower and spire. The nave is 75 feet 6 inches long, by 30 feet wide. The height from the floor to the ridge is 47 feet. The chancel is 27 feet by 18 feet, and 36 feet high to the ridge. There is a gallery at the west end of the nave, in which stands an organ (erected by Telford, at a cost of 280*l.*), designed so as to expose a circular stained glass window in the gable. The total cost, including tower and spire, gas-fittings, &c., has been about 4,000*l.* Messrs. Welland & Gillespie are the architects. Mr. J. Hunter, of Bandon, is contractor.

The new R. C. Church of SS. Peter and Paul, Cork, the foundation stone of which was laid eighteen months ago, is rapidly approaching completion. The style is Franco-Gothic of the thirteenth century. The plan is cruciform, and consists of nave and chancel, north and south aisles, transepts, chapels, a tower and spire, 232 feet high, at the north-west angle, and a small porch and baptistery at the south-west. The nave is 127 feet 6 inches long, 35 feet wide in clear between the columns, and the height from the floor to the ridge is 87 feet 9 inches. The nave is lighted from the clerestory by nine 4-light windows. The chancel is polygonal in form, and is 35 feet by 17 feet 6 inches in clear. The roof is open timbered and panelled. All the shafts in the arcade are of red marble, with bases of polished black limestone. All the arches and spandrils of nave are of Caen stone. In the spandrils will be statues, life-size, of the Twelve apostles, in Caen stone. The exterior walls are of red sandstone, with limestone door and window dressings. The cost of the building, exclusive of the tower and spire, is estimated at 11,000*l.* Messrs. Pugin & Ashlin are the architects. Mr. Barry McMullan is contractor.

Preliminaries for the exhibition of fine arts and ornamental art, in connection with the Royal Dublin Society, are to be taken early in May. The Guarantee Fund has doubled the original amount fixed on by the Committee as desirable.

A large hotel, with 180 bedrooms, and proportionately suitable sitting, coffee, &c., &c. rooms, is to be built at Bray, co. Dublin, and will have an elevation of 120 feet facing Queensborough-road. Mr. John Brennan is the projector; Mr. O'Kelly the architect. This town, which has grown from a "deserted village" most rapidly into a populous suburb, is at present the most important field for building operations in the vicinity of Dublin: indeed, considering the extent and resources of the metropolis, its progress may be characterized as marvellous.

The newly-elected architects to the Royal Hibernian Academy are Sir Thomas Deane, Messrs. Charles Lanyon, Patrick Byrne, and William Murray, who, together with the present academicians, Messrs. McCarthy and Mulvany, will constitute the quorum.

A drinking-fountain, after a design by Messrs. Deane & Woodward, constructed of Caen stone and fitted with charcoal filter, has been erected in a recess formed purposely in a high wall at Parkgate-street, Dublin, close by the entrance to Phœnix-park. The cost was about 50*l.*—a donation from the Earl of Carlisle, Lord-Lieutenant.

STAINED GLASS.

All Saints', Hastings.—Mr. Charles Gibbs has completed the memorial window to the late Earl Waldegrave, which is to be erected in the chancel of All Saints' Church, Hastings. The subject is the Crucifixion, set forth by thirty life-size figures, with a distant city of Jerusalem. The window, in parts very praiseworthy, is 12 feet wide by 20 feet high. It is now on view in the Marylebone-road.

Doncaster Parish Church.—The designs for the Sharpe memorial (great east) window, prepared by the two selected firms, Messrs. Hardman & Co. and Messrs. M. & A. O'Connor, have been exhibited in the town-hall. The subjects were chosen by Mr. Scott, the architect. The general plan is to represent, in the eight upright lights, the Atonement, the Ministry, and the Incarnation and Manifestation of Christ. In the design of Messrs. Hardman the illustrations commence at the bottom of the window. Messrs. O'Connor have

placed them at the top of the lights, and carried them across the eight divisions. The standing figures in the window of Messrs. O'Connor's design are to be 4 feet 6 inches in height; in Messrs. Hardman's, 3 feet. The effect of each must depend mainly upon the colouring that may be introduced: in both instances care has been taken to show the general outline. Messrs. Hardman's, according to the local *Gazette*, is drawn to a scale of one inch to the foot, Messrs. O'Connor's three-quarters of an inch to the foot.

Maison Dieu Hall, Dover.—A liberal tradesman of Dover has given 50*l.* towards "a memorial window to the British troops who fell in the Crimea," and other subscriptions for the purpose are now in course of collection. A design has been selected for the purpose—that of Hubert de Burgh, Earl of Kent, and founder of the Hospital of the Maison Dieu, holding Dover Castle for King John against the Dauphin of France, when invited hither by the insurgent barons, till relieved by the succour of John de Penchester, A.D. 1216. The cost of the window is estimated at about 250*l.* The contributions already received amount to about 132*l.*

Whitchurch (*Salop*).—The apse of the church here, recently altered in its relative proportions, under the directions of Mr. J. Livock, of London, architect, has just been enriched by three stained glass windows, the work of Messrs. Warrington, of London. The windows, like the edifice, are of the Corinthian, or rather Composite order. They are each more than 18 feet high by upwards of 8 feet wide, semicircular at the top, and in one clear expanse, without subdivisions by mullions or tracery. The centre window is occupied by a picture of the "Ascension," the figures nearly life-size. The lower part is composed of the eleven apostles, in attitudes of adoration and astonishment, backed by a landscape, which divides the upper from the lower part of the picture. The borders consist of columns on the sides. Cherubs above and below, bearing wreaths of fruits and flowers, form an accessory to the whole. The side windows are less subject windows than the centre. The treatment of each is alike, with the exception that one contains a figure of St. Paul, and the other of St. Peter.

St. Peter's, Sudbury.—A new painted west window has been put in by Messrs. Hardman, of Birmingham; subject — "The three Archangels." The window is a memorial.

ARCHITECTURAL PHOTOGRAPHIC SOCIETY.

ON Tuesday, the 12th inst., Mr. R. B. Pullan read an interesting paper "On the Photographs of French Gothic Architecture, in the collection in the galleries in Conduit-street, giving an account of the buildings represented. Mr. Pullan was not correct in speaking of photography as "an art or a science invented in France, though perfected in England." Photography was "invented," if we may use the word, in England.

On the 19th inst., Mr. James Fergusson continued the series with a discourse on the Collection of Indian Photographs. Mr. Fergusson gave a lengthened account of the growth of the Indian temples, and urged that modern architects might learn much from the study of Indian buildings. Mr. M. D. Wyatt, who was in the chair, congratulated the meeting on getting their information from one so well qualified to afford it as the lecturer.

THE FLEET SEWER ACCIDENT.

AT the adjourned inquest, Dr. Letheby, the City Officer of Health, gave his evidence to the effect, that the cause of death must have been sulphuretted hydrogen, evolved from the sulphuret of iron in the sewer mud (which the men, as should have been stated in this connection, were clearing away), and that the cause of this evolution of sulphuretted hydrogen was probably acid liquor, or water impregnated with acid. Dr. Letheby stated that he had made diligent inquiries, and found that such liquor or water was habitually sent through the sewers, near the fatal spot, by Messrs. Tylor, of Warwick-lane, who used large quantities of sulphuric and nitric acid, in cleansing castings of brass and copper, and run the waste through the drains. This was admitted in evidence by Mr. Alfred Tylor, who, however, stated that the liquor ran into the Fleet sewer below the spot where the men were working. The mud stirred by them, nevertheless, would thus just meet the liquor in the fittest form for mutual and sudden action. Mr. Haywood stated, that for the sixteen years he had been connected with the City Sewers Commission, not a single death till now had occurred in any City sewer. Mr. Pearson, their solicitor, stated that there was no legal remedy at present against pouring noxious matter (except gas refuse), into the sewers. The jury eventually gave a verdict of accidental death, accompanying it with a request that the Commissioners of Sewers would still further investigate the matter, with the view to devise and practically enforce some means of preventing any deadly contamination of the sewers in future.

BRUSSELS "PALAIS DE JUSTICE" COMPETITION.

WE have not any definite information as to this competition. The designs have been exhibited, but have not excited much interest. A correspondent states that the plans exhibited are unsatisfactory, and that none of the leading architects of the country have competed, the inducement being deemed insufficient.

COMPETITION: CHAPEL, HAMPSTEAD.

SEVEN sets of designs were sent in for the new Chapel, Hampstead. Those with the motto, "May the best design win," found to be by Mr. Stapelton, of London, have been accepted.

COMPETITION: SHEEPSCAR WESLEYAN CHAPEL, LEEDS.

EIGHT or ten architects were invited to compete for this building, and the design of Messrs. Pritchett & Son, of York, has been selected.

YORKSHIRE AGRICULTURAL SOCIETY'S COMPETITION.

SIR,—As no communication has been issued by the above society respecting the receipt of the plans for farm buildings and labourers' cottages, forwarded three months ago; I beg to ask, through the medium of your Journal, when this may be expected, as the delay altogether is quite unaccountable. A COMPETITOR.

WARMING RAILWAY CARRIAGES.

A CORRESPONDENT writes,—"Our Continental neighbours have just introduced a method of warming railway-carriages which should be at once adopted in this country; involving, as it does, only a trifling expense, and being a great boon to travellers. The waste steam from the engine, instead of being allowed to escape into the air, is conducted from the escape-pipe of the engine, by means of a vulcanized india-rubber tube, to pipes through which it circulates under the seats and throughout the carriages. As soon as the train is set in motion the steam commences to circulate through all the systems of pipes, and warms the carriages—first, second, and third class—equally; and, being connected with each other by india-rubber tubing, they can be immediately detached or re-united at pleasure. In a trial on the Lyons line, two thermometers placed in first-class carriages marked 60 deg. Fahrenheit during the whole journey; and, in the second and third-class carriages, the temperature was sufficiently elevated to allow of the longest winter's journey being accomplished without discomfort. However cold the carriages may be when at rest, as soon as the train is started the steam commences to circulate through the tubing, and communicates an agreeable temperature to the whole train.

RESIGNATION OF THE SUPERINTENDENT ARCHITECT.

THE METROPOLITAN BOARD OF WORKS.

AT a meeting of the Board last week, a letter was read from Mr. Marrable, the superintending architect of metropolitan buildings, stating that when, in 1855, candidates were invited for the office of superintending architect of metropolitan buildings, at a salary of 800*l.* per annum, nothing was said to induce a belief that he would be expected to perform such onerous and responsible services of a professional character as had been demanded of him, relating to the survey, valuation, and purchase of property for the new streets undertaken by the Board; that he had had to deal with property for which claims amounting to 711,665*l.* had been made, but which had been settled for 461,776*l.* 19*s.* 4*d.*; that he had superintended the erection of the new offices in Spring-gardens, and other works; that as regards the duties of his office, he had had to write 5,000 reports. He had made three appeals in vain to make his emoluments in some degree commensurate with the extra duties required of him, and now they had voted him an additional 200*l.* per annum. In justice to himself he could not any longer retain his appointment on the terms offered, and tendered his resignation. The resignation was accepted, and it was referred to a committee to consider the duties and salary of the office of a superintending architect.

Various names have reached us as those of candidates for the vacant appointment, especially that of Mr. Robert Kerr. The Committee of the Board have decided, we believe, that the salary shall remain 800*l.* a year, with full duties as before. The election will take place on the 8th of March.

THAMES EMBANKMENT.

At another meeting the president said that, having received a communication from her Majesty's Chief Commissioner of Works, expressing a wish to see him upon the subject, he had attended. He (the president) had again strongly urged the objections entertained by the Board to having this subject referred to a commission. The Chief Commissioner said that he still adhered to the opinion that a commission would be necessary, and the Government proposed that the commissioners should be seven in number, and that the present Lord Mayor should be the chairman. He (the president) had that day received a formal request to be one of the committee, and he had replied, expressing his willingness to undertake that responsibility.

LONDON WELLS.

I OBSERVE, in a recent number of the *Builder*, a notice in respect of the "Clerks' Well" at Clerkenwell, London, which is very interesting.

I see it stated, in the London journals, that it is in contemplation to remove Holywell-street, Strand, with a view to the improvement of that district of London.

I have to express a hope that care will be taken, in that event, to search for and preserve the ancient "Holy-well" of that locality, which still supplies the "old Roman bath" in Strand-lane with the purest water, although the source is still hidden and neglected. It would be found, I have been informed, in some one of the back yards of the present houses in Holywell-street.

In these days of public drinking-fountains, it would afford an inexhaustible supply of pure water; and an appropriate architectural structure erected over it would be an ornament to that frequented locality, and the associations connected with it would gratify liberal and classical taste.

It is as old as the days of Julius Cæsar, who, it is said, built the old Roman bath above stated.

I generally reside in that neighbourhood when I visit London, and supply myself with pure water daily from the old Roman bath, agreeing with Pindar, that *αριστον μεν ὑδωρ*.

JOHN MORRISON, A.B. & M.D.

A PRESERVATIVE COATING ON MEDIÆVAL STATUES.

I HAVE read with much interest the discussion which has been occasioned by the decay of stone in London; and, considering it to be the duty of every person in matters of this kind to give the result of his own experience, I trouble you with this letter.

In the year 1853 I was engaged by Mr. Digby Wyatt to take the casts from the cathedral here (Wells), which are now in the Crystal Palace. These casts included many of the statues in the west and north-west front of the church. In the course of this work I detected very distinct traces on every figure, as well as on much of the foliage of the niches, &c., of some kind of coating or composition which had been laid on, as I considered, when the figures were first set up in their niches. The covering was so thin as to be scarcely discernible, except on close examination. It did not seem like ordinary paint, as the coating was too thin and transparent for any composition of that sort. Notwithstanding its thinness, however, the surface of the figures, wherever the coating remained, was perfectly impervious to moisture; as I found by experiments that liquid would run off, as if the surface had been finely polished marble. In the more exposed parts of the sculptures the coating had disappeared, and decay had commenced and gone on to a greater or less extent; but I cannot help thinking that, had this coating been renewed, even once in a hundred years, the glory of our cathedral would have been preserved, in a perfect state, to the present time.

One of my reasons for making this communication is to show the probability that it was the practice in early time to protect ornamental sculptures from the effects of atmospheric influences by artificial means.

I may also add that I found traces on the faces of the larger statues of colours having been used; or, in other words, that the features had been "picked out" with colours. JOHN DERHAM.

ACTION FOR DAMAGES AGAINST THE MARBLE MILLS.

Collins & Green v. *Read.*—This action was tried in the Brompton County Court, before Mr. Adolphus and a jury.

The plaintiffs carry on business as marble workers, in Albion-street, Southwark; and defendant, it perhaps is needless to say, is proprietor and inventor of the Patent Steam Sawing Marble and Stone Mills, in Upper Belgrave-place, Pimlico.

The plaintiffs sought to recover 14*l.* damages, alleged injury to a block of marble sent by plaintiffs to defendant's mills to be sawn into slabs. The trial lasted nearly all day.

On the part of the plaintiffs, it was stated that the block of marble was sent to the mill to be sawn into twenty-two slabs; and, when the slabs were being polished by the plaintiffs' men, it was discovered that the stone was stained, through the saws being left in the blocks whilst being unworked. The injury the marble sustained caused some of it to be returned from Windsor.

The answer to the case put a very different complexion upon the charge. It appeared that the present defendant had to sue Messrs. Collins & Green in the Southwark County Court, for cutting the block in question, and had received 18*l.* 0*s.* 6*d.*; that nothing was said about any

injury to the marble until it had been sent home, and application was made for Mr. Read's account, some two months after the blocks were cut into slabs. Mr. Read, jun., however, before getting into the witness-box, had some of the alleged injured marble handed to him, and he instantly pointed out to the jury that the marble produced was not cut from one block: the veins run differently. He also showed that no slabs left their mill without being cleaned off separately; and that it was impossible any stains could be left by their saws, as they were always in motion.

Mr. Bingham, marble mason, of Brompton; Mr. Gibbs, and other practical men, also declared that the marble produced was from different blocks; and, as no entire slabs were produced, the jury had no hesitation in giving a verdict for the defendant.

Books Received.

The Year-Book of Facts in Science and Art, exhibiting the most important Discoveries and Improvements of the past Year. By JOHN TIMBS, F.S.A. London: Kent & Co. 1861.

THIS is a particularly interesting volume of the Year-book of Facts. It is illustrated with a vivid engraving from a photograph of Lord Brougham, and a vignette view of the University New Museum at Oxford. The records of the year are preceded, too, by an able and interesting memoir of Lord Brougham. Having for many years taken occasion to note the advent of this favourite annual, all we need now do is to recommend it anew, and as strongly as ever, to the notice (or the recollection, rather) of our readers of all descriptions. Should any of them have failed to catch the early intimations of new discoveries as they have appeared during the passing months, here they are all carefully condensed and collected for them; and even those who watch each new phase of science and art as it comes forth, may derive renewed pleasure from the refreshment of their memories. The preservation of the stone of the new Houses of Parliament is just now re-exciting interest in our professional and other circles: by turning up the Year-book for 1861, in order to recall to mind what was said and done on this subject last year, we not only find an excellent summary of it all, but this summary forces us to draw the conclusion that in all the rediscussion which has been going on, scarcely a step in advance has been made towards a satisfactory solution of the problem.

VARIORUM.

"A HANDY-BOOK of Patent and Copyright Law, English and Foreign, for the Use of Inventors, by James Frazer, Esq.," has been issued by Law & Co. of Ludgate-hill. It is intended to furnish inventors, authors, and others with all the information they may require as to the expenses, rights, privileges, and obligations of patents and copyrights in this and other countries, and of the means to be employed to obtain them. Whether it be all-sufficient to that end can only be ascertained by experience; but the work appears to be at least both useful and suggestive towards all that is requisite. We may here note, by the way, from other sources, that a convention with Sardinia, signed on the 30th of November, and of which the ratifications were exchanged on the 4th of January, has been laid before Parliament. It provides for an international copyright in works of literature or art published in either country. Besides original works, a translator is to be protected in respect of his own translation; but fair imitations or adaptations of dramatic works to the stage of the respective countries are not prohibited. Articles from newspapers or periodicals may be republished or translated, provided the source be acknowledged, unless the author, in a conspicuous manner, forbids the republication.

Miscellanea.

IMMENSE GRAVING DOCK FOR BIRKENHEAD.—At a recent meeting of the Mersey Dock and Harbour Board it was resolved to construct a very large graving dock at Birkenhead. Its length is to be 750 feet; width, 85 feet; depth, 100 feet. It will accommodate two rows of ships, and admit two ships at a time. The cost is estimated at 84,000*l*.

BIRMINGHAM SCHOOL OF ART.—Twenty-seven students obtained medals at the examination, held on Saturday, 9th February, 1861. The works of ten were forwarded to London for National Competition. Honourable mention was given to two, and the works of the following art pupil-teachers were forwarded for National Competition:—Mary Preston—Anatomy; Alfred Brown—Painting of Fruit; Thomas Bingley—Model of Clytie.

ACCIDENTS IN COAL MINES.—More lives are often lost by the choke- or after-damp, than by the actual explosion. A simple vessel of vulcanized india-rubber or other elastic material, fitted with an orifice to cover the mouth and nostrils, charged with air (retained by a plug or tap when not in use), would enable the miner (were he, upon hearing the explosion, to catch up and apply the instrument) to make his way through the foul atmosphere in perfect safety. The cost would be trifling. It might be slung across the shoulders, or hung up in the stall when the miner was at work.—T. C.

SHEFFIELD SCHOOL OF ART.—The annual *conversazione* of this school has just been held in the rooms of the school, where a numerous and influential company assembled, and where a goodly collection of pictures and other works of art had been collected for the occasion, by Mr. Young Mitchell, the head master of the school. The address was read by Mr. Ferguson Branson, M.D., who afterwards distributed the prizes. In the year 1846 there were only thirty pupils in the school: in 1860 there were 400, with an average quarterly attendance of 200. In addition to this, 1,200 pupils are obtaining some amount of elementary art education in national and other schools. Still this number is quite out of proportion to the population and importance of the town.

BRICKLAYERS' STRIKE, WARRINGTON.—On Tuesday the operative bricklayers issued a placard, announcing that they were "out" for an advance of 6d. per day. The men had been at work only a fortnight after the late severe frost, and the masters think their conduct extremely ungracious and uncalled for, considering that they have hitherto been earning 4s. 6d. per day, and that during the frost so much had been done to alleviate the distress which prevailed among them. Building has, of course, been brought to a complete stand, and there is not, at present, any sign of an amicable settlement of the dispute. The men appear determined to gain their object, and the masters are equally determined to resist the demand. The operative bricklayers are said to be connected with a union in Manchester, which is furnishing them with funds to enable them to hold out.—*Manchester Courier.*

THE UNSANITARY STATE OF SCHOOLS.—This important subject has been brought before the notice of the Duke of Newcastle, as chairman of the Commission on Popular Education, by the medical officers of health of the metropolis, in a communication sent to the Duke, and which his Grace has read to the Commission. The communication pointed attention to the fact that the hours of teaching were usually too long and a violation of physiological laws, especially in schoolhouses as commonly constructed, which thus became a frequent source of infirmity, disease, and death. Public schools were characterized as but too often hot-beds of epidemical diseases. The injurious influence of the usual system on teachers was also dwelt upon; and the communication, which was signed by the hon. secretary of the Association of Medical Officers of Health, concludes with the expression of a conviction that a reduction in the hours of sedentary constraint and bookwork, and a due attention to sanitary requirements for exercise and physical training, would be highly conducive to an improved mental and moral culture.

FALL OF BUILDINGS.—An extensive slip has occurred at the Ynisygeinon Station, the extreme point of the Swansea Vale Line, recently opened. This slip partly carried away the railway station, the clock, and all other contents; and they were deposited in the middle of the river. The stack of the engine-house of the Ynisygeinon Colliery, at the end of the station, also fell in, and the destruction of property is considerable.——A wooden bridge crossing a stream about a mile from Doncaster, over which the Great Northern Railway passes, has fallen in. Amongst the passengers of a train, which made a narrow escape in this case, was the Rev. E. Monro, vicar of St. John's, Leeds, an intimate friend of the late Dr. Baly; with whom, indeed, he was engaged to dine on the day the doctor was killed on the railway at Wimbledon, and over whose body he read the funeral service at Kensal-green Cemetery. It will be recollected, too, as another curious coincidence, that Dr. Wyld, the gentleman who occupied the carriage along with Dr. Baly, also experienced the perils of railway accident at the Hitchin smash, where his carriage was tumbled on to the top of another. In both cases, by quiet self-possession, he escaped Scot free. Surely this gentleman has exhausted his average chances of being in such accidents.

DRINKING-FOUNTAIN, TYNEMOUTH.—Through the liberality of Mr. William Scott, of London, the inhabitants of Tynemouth will shortly have the benefit of a clock-tower, with drinking-fountains and barometer attached. The erection of the structure is about to be proceeded with by Mr. B. C. Lawton, from the designs of Messrs. Oliver & Lamb. The tower will be in alternate bands of stone and brick, embellished with Aberdeen granite columns at the angles.

HEATING AND VENTILATING IN COLD WEATHER. Perhaps some of your correspondents can describe the manner in which the water-supply is maintained and distributed at *St. Petersburg*, and how ventilation, in connection with due warmth, is carried on during the *cold season*, in the residences of the poor there, and their *sewage* disposed of. After the recent severe winter in England, such information might be interesting to the public, as well as to—A READER.

BUILDING AT KIRRIEMUIR.—A site has been purchased in Bank-street, on which will be erected offices for the business department of the City of Glasgow Bank, together with a house for the agent. There is also to be a new Town-house on the present site; but a local contemporary hopes the building will be erected so as to ensure a broader and better entrance, for the present one is almost dangerous and inconvenient. The designs and plans for both these buildings are intrusted to Mr. James Carner, a young architect.

STRIKE OF BRICKLAYERS AT MANCHESTER.—Sir: The disputes between the masters and their workmen still continue. The former have offered to come to terms, or to refer the differences to arbitration, but hitherto without success. They have, it appears, been guilty of neglecting the rules of etiquette in their attempted communications with the operatives, which the latter deem it necessary to be strictly observed. Should the present move on the part of the workmen be successful, the definition of the term "master," in Manchester, will be—"A person who is graciously permitted to *find work* and *wages* for the operatives."—LOOKER-ON.

POLYGRAPHIC HALL.—Well done, Mr. Woodin, polygraphic Woodin! His Cabinet of Curiosities is even better than his previous entertainments,—never flags an instant, and is unexceptionable, imbued with his own gentlemanly feeling, from first to last. In this entertainment, aided with some very pretty scenes, he represents forty-one persons, a dozen of them dressed completely from head to foot with a rapidity perfectly marvellous; sings innumerable songs, assumes dialects, and dances a hornpipe. The hall, too, has given up its grime, and, under the hands of Alfred Crowquill, has put on elegance.

PORTABLE RAILWAYS.—A new system of portable railway has been lately experimented upon at the forage markets of Compiègne before a great number of persons interested in the matter. M. Preclin, cart-smith, is the inventor, and has executed the work with the greatest simplicity. According to his views the invention is applicable to the carrying out of agricultural and industrial labour, and particularly so to flour or sugar mills, for it consists simply in a series of fragments, something like a ladder, which fit together one after the other, and form a temporary way. In an hour 100 mètres of line can be laid, so that it is easy to see what advantage a distillery or sugar-mill would obtain by this system in the transport of beetroot through wet clayey soils or marsh lands to the factory. The gauge is 75 centimètres; and the waggons, holding a mètre cube, can be easily pushed by one person.

NEW ALMSHOUSES, NORTON FOLGATE.—In 1728, Mr. William Tillard, proprietor of nearly the whole of Norton Folgate, London, gave a piece of ground at the end of Blossom-street for the erection of almshouses. These almshouses comprised eighteen rooms, and provided for eighteen poor (male and female) inhabitants of the Liberty; but were taken down when Commercial-street was made; and, with the money produced by the sale, the trustees purchased a plot of ground at the corner of Red Lion-court, on a part of which they have erected buildings for sixteen persons. The remaining portion is to be let on building lease; the rent arising therefrom being intended for keeping the houses in repair, and other expenses. The new buildings are plain and substantial, and consist of two blocks, each affording accommodation for eight persons, with a staircase in each block common to all. The architect is Mr. T. E. Knightley: the builders are Messrs. Pritchard. The almshouses have no endowment fund, and are therefore available only for such persons as have small resources. Contributions, in aid both of the building and endowment funds, are asked for.

LIVERPOOL LIBRARY AND MUSEUM RATE.—At a recent meeting of the Town Council, Mr. Picton moved that a library and museum rate be laid under the provisions of the Library and Museum Act, 1852, to raise a sum of 6,947*l.* 16s. 4d. The rate will be within a very small fraction of a penny in the pound. After some remarks on the subject the rate was agreed to, and the usual warrant authorized to be issued.

THE FIRST SUBMARINE TELEGRAPH.—The formation of the first submarine electric telegraph is claimed, in the *London-American*, for Colonel Colt, of revolver celebrity; who, it is said, in 1842-3, laid down a submarine telegraph, connecting the Merchants' Exchange at New-York with Coney-island and Fire-island. Gutta-percha was not then known; but the cable is said to have been insulated with a combination of cotton-yarn with asphalte and bees'-wax, and the whole was enveloped in a leaden pipe.

A PLAGUE OF TOADS.—At a recent meeting of the Bath council, the cold water committee (as it is rather curiously styled) recommended the erection of a paling round the reservoir at Batheaston, at a cost of 95*l.* Mr. Fuller said the object was to prevent the inroad and continual descent of toads. The fact was that the consequences of their inroad into the reservoir were serious. The spawn was in such myriads, that it got into the water-pipes, and caused a great deal of expense. From the statements of other members, the nuisance appeared to be of a very disgusting nature, but the paling was reported to be an efficient protection for the future.

ANCIENT REMAINS IN RINGMORE CHURCH.—In the east wall of the north transept, two windows, hitherto blocked and effectually concealed on the outside by rough cast, and inside by plaster, but now opened, have proved, it is said, to be of very early Norman, or more probably Saxon date, closely resembling the acknowledged Saxon windows in Tintagel Church, Cornwall. Externally they are very short and narrow, and have semicircular heads. Internally they are splayed to a great width and height. Another window was discovered between them which had been cut through the wall, apparently in the fourteenth century. This portion of the church is believed to be between 800 and 1,000 years.

PRESERVATION OF WOODEN FENCES.—A paper on this subject by Mr. Cruikshank of Marcassie, as reproduced by the *Banffshire Journal*, gives in detail various experiments from which it appears, as in the author's summary, that, 1st. When larch or fir wood is to be exposed to the weather, or be put in the ground, no bark should be left on it. 2nd. When posts are to be put into the ground, no earth should be put round them, but stones. 3rd. When a wooden fence is to be put up, a No. 4 or 5 wire should be stretched in place of, or alongside, the upper rail. If a proper larch fence were put up, or larch posts for wire paling put in, as suggested, he adds, I have no doubt but they would stand a lease of nineteen years.

THE BROKEN PLATFORM AT THE NORTH DOCKS STATION, LIVERPOOL.—The adjourned inquest on the body of John Turner, stoker, who was killed by the fall of a platform at the Lancashire and Yorkshire North Docks Station, on the 14th January, has been held. Mr. Newlands, the borough engineer, having again examined the platform, now made a formal report on it, in which he says,—"Taking the formula which gives the most favourable result, I find the breaking weight of the girder to be 114 tons when loaded in the centre, which is equal to 228 tons distributed over its length. The permanent dead weight of the platform sustained by the girder, including its own weight is 72 tons; and the margin left between the permanent load and the breaking weight, 156 tons; but one-sixth or one-fourth of the ultimate breaking weight is usually taken as the limit of safe load—say one-fourth or 57 tons, while the permanent load was 72 tons; consequently, the permanent load exceeded the limits of safety by 15 tons." Several of the railway company's servants were examined; and, from the tenor of their evidence it was clear that the platform in question never was intended for the use of engines; that engines, however, were frequently on it; and that on many occasions from twenty-five to thirty loaded waggons had been distributed over it, the average weight of each waggon being about eight or nine tons. The scientific witnesses concurred generally in the views expressed by Mr. Newlands. The jury returned a verdict of "Accidental death," accompanying it with an expression of opinion that, the orders of the company against engines going on the platform being only verbal, Humphries was not fully conscious of the danger in taking an engine on the platform.

PROPOSED NEW BRIDGE FROM LAMBETH TO WESTMINSTER.—The examiners of the House of Commons have declared the standing orders complied with in the case of the proposed undertaking for a bridge across the Thames connecting Church-street, in the parish of St. Mary, Lambeth, with Market-street, in the parish of St. John the Evangelist, Westminster.

A NEW SURVEYING CHAIN. — Among the articles at the Wisconsin State Fair, U.S., was a new invention by Wm. H. Payne, of Sheboygan, to supersede the usual chain used in surveying. It consists of a steel measure, which coils up like a tape measure, but is so tempered as to be perfectly straight when uncoiled. The whole weight of the instrument does not exceed three pounds. A thermometer is attached to it, and the measure, it is stated, can always be of the same length, no matter what is the temperature.

THE WILL OF HANS HOLBEIN.—At the meeting of the Society of Antiquaries on Thursday (Feb. 14) a very interesting discovery was announced by Mr. W. H. Black, F.S.A., the well-known paleographer. It is that of the will and administration to the effects of the artist Hans Holbein, who, it has always been asserted, died in England, and as late as the year 1563, though no certain trace of him has been found for many years before. It is now proved that he died in the year 1543, four years before the death of Henry VIII. This discovery will affect the reputation of many pictures that have been attributed to him. Will somebody be good enough to tell us of something on which no doubt can be thrown? Is nothing true?

RESTORATION OF CENTRAL TOWER OF DURHAM CATHEDRAL.—For two years the restoration of the great central tower of this cathedral has been progressing, and it is now completed, and the last plank of the scaffold removed. In October, 1858, it was found necessary to remove the top parapet on account of its loose and insecure condition; after which the dean and chapter resolved to restore the tower in the best known way; and, after consulting Mr. G. G. Scott, architect, instructed Messrs. Walton & Robson, architects, on the 22nd of January, 1859, to prepare the necessary drawings and specifications. The works were soon after let to Mr. Thomas Winter, of Durham, who has executed them. The entire upper stage has been faced with Prudham and Dunhouse stone. The beds of the courses follow those of the old work, and the stones extend from 10 to 18 inches into the wall, being wedged with slate where practicable, and bonded firmly to the old work, while at intervals are large copper cramps, passing through the wall. The work is set and grouted with Portland cement. In addition to the facing of the upper stage, all the buttresses, on account of their loose condition, have been rebuilt some distance lower: one has been so done from the very roof. The great lantern window on the east side has been restored: the old figures of which the tower had been denuded have been reinstated (the precaution of first coating them with a solution of shell-lac for preservation having been taken): the requisite new figures have been added; and the joints of the old unrestored masonry have been raked out and pointed with cement. Of the figures, the whole of the ten on the east side are new, and are from the chisel of Mr. Beall, of Newcastle-on-Tyne, sculptor. The entire number of old figures replaced is twenty-seven, and that of new ones added, thirteen. A patent octagonal lightning-conductor of copper has been fixed at the south-east angle of the tower, with a tractor carried up at each of the four corners. It was made by Mr. Samuel Brown, of Sheffield, at a cost of 100*l.* During the progress of the restoration a theory was started that the original intention had been to finish the tower with a crown imperial, as at Newcastle, &c. This arose from the discovery of certain marks on the inner angles of the solid masses of stone at the four corners.

TENDERS

For pulling down and rebuilding the Lamb Hotel, Nantwich. Mr. Thomas Bower, junior, architect. Quantities supplied by Messrs. Nichols and Bower:—

Farrell & Ledger	£1,800	0	0
Hodgkinson	1,589	3	4
Ray (accepted conditionally)	1,330	0	0
Bowker	1,321	0	0
Field	1,249	0	0

For building villa, at Streatham. Mr. I'Anson, architect:—

Notley	£4,498	0	0
Little	4,321	0	0
Coleman	4,286	0	0
Conder	4,281	0	0
Thompson	4,275	0	0
Bowley	4,197	0	0
Gammon	4,126	0	0
Macey	3,975	0	0
Rider	3,960	0	0
Downs	3,899	0	0

For restorations to No. 2, Helmet-court. Mr. F. Lett, architect:—

Vuller	£285	0	0
Wood	280	0	0
King	232	0	0
Macey	225	0	0
Elstone	220	0	0

For new chapel and schools, Bedfordbury, near St. Martin's-lane, W.C. Mr. A. W. Blomfield, architect. Quantities supplied by Mr. J. A. Bunker:—

Clemence	£2,895	0	0
Patman & Fotheringham	2,865	0	0
Myers	2,790	0	0
Holland & Hannen	2,700	0	0
Trollope & Sons	2,640	0	0
Turner & Sons	2,555	0	0
Child, Son, & Martin (accepted)	2,500	0	0

For the carcasses of five houses and shops, adjoining the Prince of Wales, Coldharbour-lane, Brixton. Mr. Edwin Nash, architect:—

Thompson	£1,363	0	0
Gates	1,320	0	0
Rudkin, jun.	1,295	0	0
Brashier	1,258	0	0
Churchyard	1,254	0	0
Marsland	1,235	0	0
Tyler	1,192	0	0
Notley (accepted)	1,189	0	0
Garnham	1,097	10	0
Dover	1,030	0	0

For alterations and additions to the Albion Works, Hanley, for Mr. J. Dimmock. Mr. R. Scrivener, architect. Quantities supplied;—

Woolrich	£5,000	0	0
Jones	5,000	0	0
Clews	4,991	0	0
Watkin	4,865	0	0
Matthews	4,777	0	0
Baker	4,700	0	0
Hammersly	4,695	0	0
Harley & Dean (accepted)	4,300	0	0

For Messrs. Robert Thin & Co.'s warehouse, Redcross-street, Liverpool. Quantities taken out by Mr. J. Hay:—

Tomkinson	£4,800	0	0
Mullins	4,732	0	0
Rome	4,623	0	0
Jump & Son	4,600	0	0
Roberts	4,452	0	0
Burroughs	4,340	0	0
Holme & Nicol (accepted)	4,241	0	0

For alterations to Messrs. Naylor & Co.'s premises, Princes-street, Cavendish-square. Final portion of works. Quantities not supplied. Mr. E. Bassett Kuling, architect:—

Simmonds	£199	10	0
Brown	193	10	0
Saunders (accepted)	189	0	0

For washing-troughs and other fittings at the workhouse of the Whitechapel Union. Mr. G. H. Simmonds, Architect:—

Cornwell	£209	0	0
Collins	128	0	0
Thorpe	124	0	0
Moseley	124	0	0
Carter	119	0	0
Murdock	118	10	0
Parrett	108	0	0
Hartland	106	0	0
White	102	10	0
Lucas	100	0	0
Cole	99	10	0
Potter	99	0	0
Porter	97	10	0
Rivett	97	0	0
Hill	97	0	0
Dowling	97	0	0
Wood, Brothers	94	19	0
Stoner	94	0	0
Forsdike	93	10	0
Hammer	93	0	0
Tolley	92	0	0
Markhall	89	0	0
Terry	88	0	0
Nash	87	15	0
Page	86	0	0
Gallienne	72	4	5
Collin	70	0	0

For drainage works, at the Industrial Schools, Forest Gate, Essex, for the Whitechapel Union. Mr. G. H. Simmonds, architect:—

Morter	£168	0	0
Hill	145	0	0
Leekes	137	8	0
Rivett	137	0	0
Simms	137	0	0
Page	134	10	0
Mundy	130	0	0
Pound	122	4	0
Hill	122	0	0
Wood	118	0	0
Wilson	105	7	6
Hawkes	104	10	0
Tolley	104	0	0
Lynam	103	0	0
Dowell	98	10	0
Cattell	95	0	0
Stacey	90	0	0
Horne	88	0	0

For dwelling-house, for Mrs. George Woodward, at Great Malvern. Mr. E. W. Elmslie, architect.

Holt (accepted)	£1,330	0	0
Hancock	1,325	10	0

For dwelling-house and stables, for Mr. G. Hicks, at Great Malvern. Mr. E. W. Elmslie, architect:—

	House.			Stables.		Total.		
Wood	£2,620	0	0	£498		£3,118	0	0
McCann & Everal	2,494	0	0	495		2,989	0	0
Nott	2,315	0	0	435		2,750	0	0
Davis (accepted)	2,244	16	0	550		2,794	16	0